In Clinical Practice

Christopher Sonnex

Sexual Health and Genital Medicine in Clinical Practice

Second Edition

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In Clinical Practice

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Preface

This book is aimed specifically at medical practitioners in primary care who require a quick guide to help diagnose and manage genital problems. As such, this is not a comprehensive text but a prompt to "what to do next" when faced with a patient presenting with a genital complaint. A list of reference of textbooks and useful websites is provided in the Further Reading section (page 179) and I would recommend perusing these at some time.

Just a word of explanation about "genitourinary medicine," which is referred to in the text and is familiar to practitioners in the United Kingdom. "GU medicine" arose as a medical specialty in the mid-1980s replacing the term "venereology" which seemed an outdated and too restrictive description for the types of problems seen in, the then, so-called "VD" or "special" clinics. Although many patients attended these clinics with sexually transmitted infections (STIs), a good number attended with other genital problems. GU medicine clinicians now routinely diagnose and manage genital skin conditions, psychosexual problems, and infections, such as candidiasis and bacterial vaginosis, in addition to sexually acquired infections. The name "genitourinary medicine" was considered more appropriate and less stigmatizing as it suggests a specialty that deals with a range of medical conditions affecting the urogenital tract. "GU medicine" has caused some confusion beyond the United Kingdom, but education rather than reverting back to old title of "STI clinician" is the preferred way forward. The stigma associated with STIs persists and, inevitably, a degree of stigma hangs over the GU medicine clinic, but the message that GU medicine has

a wider sexual health remit is slowly permeating through the medical establishment and into the public psyche. Over the last few years in the United Kingdom, there has been a trend to move away from the name "GU medicine" toward "sexual health." This is by no means favored by all and does lead to a blurring of the remit of the specialty and some loss of identity, as gynecologists and family planning specialists would also, quite rightly, consider their expertise to fall within the umbrella term "sexual health." Training will eventually provide expertise in all aspects of sexual health care but for the moment, in the United Kingdom at least, GU medicine has a well-defined training program with the emphasis on genital infection and STI diagnosis and management.

This text attempts to cover the range of conditions seen in GU medicine clinics in the United Kingdom, but genital infections and medical problems are pretty similar worldwide and so any practitioner managing genital disease and sexual health problems should find this book of practical value.

Cambridge, UK Christopher Sonnex

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Contents

Chapter 1
Which Patients to Refer to Genitourinary Medicine or Sexual Health

There is an appreciable overlap between genitourinary (GU) medicine and gynecology, urology and dermatology, which sometimes leads to difficulties when deciding to whom to turn for further advice or a specialist opinion. The following should be considered as general guidelines: if in doubt to whom to refer, give your local GU medicine/sexual health clinic a call.

Many consultants in GU medicine have specific interests and the services available from individual clinics may vary accordingly. A large number of clinics provide expertise in vulval disease, genital dermatology, psychosexual medicine, colposcopy, and sexual assault assessment and management. Getting to know your local department of GU medicine or sexual health is to be strongly recommended: GU medicine clinicians are usually very approachable and are delighted to have general practitioners (GPs) and practice nurses attend clinical sessions and learn more about the specialty.

Consider Urgent Referral

Men with

- Urethral discharge or dysuria
- Acute epididymitis.

C. Sonnex, *Sexual Health and Genital Medicine in Clinical Practice*, In Clinical Practice,
DOI 10.1007/978-3-319-21638-6_1,

Men and women with

- Primary genital herpes
- Genital ulceration: Previously unconfirmed diagnosis.

Referral Strongly Recommended

Men and women with:

- Concern (patient or doctor) regarding sexually transmitted infection
- Concern regarding human immunodeficiency virus (HIV) infection
- Any of the following infections (proven or suspected):
  - chlamydial infection
  - non-gonococcal, non-chlamydial urethritis (i.e. non-specific urethritis – NSU)
  - gonorrhoea
  - genital warts
  - trichomoniasis
  - syphilis
- Sexual partners of patients with:
  - chlamydial infection
  - non-gonococcal, non-chlamydial urethritis (i.e. non-specific urethritis – NSU)
  - gonorrhoea
  - genital warts
  - trichomoniasis.
- Positive syphilis serology.

Referral Recommended

Women with

- Persistent/recurrent vaginal discharge

- Persistent/recurrent vulval irritation/soreness/burning
- Chronic pelvic pain
- Dysuria/frequency with sterile urine culture.
- Young women with post-coital bleeding (possibly prior to referral to gynecology)
- Painful sexual intercourse (superficial or deep).

Men with

- "Testicular"/intrascrotal discomfort
- Symptoms suggestive of prostatitis/chronic pelvic pain syndrome
- Balanoposthitis.

Men and women with

- Genital warts
- Genital molluscum contagiosum
- Genital "lumps" of uncertain etiology
- Pubic lice
- Genital rashes (diagnosis uncertain or unresponsive to treatment).

Consider Referral

Women with recurrent candidiasis or recurrent bacterial vaginosis.

Chapter 2
Routine Investigations Performed in Genitourinary Medicine

Patients attending a GU medicine department for the first time and those presenting with new problems will usually undergo a variety of investigations to check for evidence of infection, both sexually and non-sexually acquired. Many GPs are uncertain which tests are routinely performed and a standard letter from the clinic stating that "the screen for genital infection proved negative" is not particularly instructive. All clinics should be screening for the same infections; however, the specific tests used may vary from clinic to clinic.

Tests routinely performed are as follows.

Men with Symptoms (e.g. Dysuria, Urethral Discharge)

Urethral Swab

Gram stain – microscopy

- Four polymorphs per high power field (HPF) = urethritis
- Gram-negative diplococci within polymorphs → *presumptive* diagnosis of gonococcal urethritis

C. Sonnex, *Sexual Health and Genital Medicine in Clinical Practice*, In Clinical Practice,
DOI 10.1007/978-3-319-21638-6_2,

Culture for *Neisseria gonorrhoeae* (provides *definitive* diagnosis of gonorrhoea).

Urethral Swab

Chlamydia trachomatis detection by nucleic acid amplification test (NAAT) e.g. polymerase chain reaction (PCR) or ligase chain reaction (LCR).

Neisseria gonorrhoeae detection by nucleic acid amplification test (NAAT) e.g. PCR or LCR.

These are usually performed on the same sample.

Many clinics have now moved from urethral swab to urine testing for chlamydia detection, which is likely to become the favoured method (certainly by patients) for diagnosing urethral infection in men.

Many clinics also rely on the NAAT for diagnosing gonococcal infection (either by urethral swab or urine) and perform culture only if gonorrhoea is considered a possible diagnosis. It's important to remember that a patient diagnosed with gonorrhoea by a NAAT will require a further swab for *Neisseria gonorrhoeae* culture, as this will provide antibiotic sensitivities.

Two Glass Urine Test

This is a time honoured test still performed in some UK GU Medicine clinics, although now considered to be of debatable value for diagnosing urethritis. It has a place in helping to differentiate a pure urethritis (usually sexually acquired) from a urethritis present in association with a cystitis (i.e. a UTI, and not sexually acquired).

First glass = a first catch urine (50 ml)
Second glass = second part of urinary stream (50 ml)

Any remaining urine is passed into the urinal.
Interpretation of urine results:

1. First: clear
   Second: clear
   = normal
2. First: pus (seen as threads, flakes, general haze)
   Second: clear
   = anterior urethritis (e.g. chlamydia, gonorrhoea, non-specific urethritis (i.e. non-chlamydial, non-gonococcal urethritis))
3. First: pus
   Second: pus
   = posterior urethritis or cystitis (e.g. *E. coli*, etc.)

Send the first glass urine or a mid-stream urine (MSU) for culture.

The urine may also be checked by dipstix. This may show the presence of white blood cells in cases of urethritis and WBC, protein, nitrate and possibly blood in cases of cystitis.

Phosphaturia is a common cause of cloudy urine. The addition of acetic acid will clear the urine when excess phosphates are present whereas the haze remains in cases of pyuria.

Men Without Symptoms

As the clinical significance of asymptomatic urethritis is currently uncertain, most U.K. clinics no longer look for urethritis in asymptomatic men. A urine NAAT is usually performed, looking for both chlamydial and gonococcal infection.

There is, however, ongoing discussion in the UK and urethral swabbing and microscopy may be re-introduced when we have more evidence based clinical information. Certainly, cases of *Mycoplasma genitalium* urethritis will be missed as culture and nucleic acid amplification tests are not currently routinely available for diagnosing this infection.

Routine Tests Performed on Women Without Symptoms

A self obtained vaginal swab or practitioner obtained cervical/vaginal swab for chlamydia and gonorrhoea testing by NAAT is the only sample required in asymptomatic women. A urine test is less sensitive for diagnosing these infections. Although both chlamydia and gonorrhoea infect the cervix and urethra and not the vagina in adult women, contamination of the vagina from these other sites and the extreme sensitivity of NAATs means that a vaginal swab is appropriate for diagnosis.

Microscopy of vaginal, cervical and urethral samples is currently not recommended in asymptomatic women. Bacterial vaginosis and 'thrush' are not treated in the absence of symptoms, although some women do admit to symptoms when they are given a diagnosis.

The details for testing symptomatic women are summarised in Table 2.1

Nucleic acid amplification tests (NAATs) have become the most popular diagnostic test for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* in the UK. They are generally more sensitive than culture and are less demanding in specimen quality and transportation of specimens. NAATs show equivalent sensitivity in urine and urethral swab specimens from men and in vaginal and endocervical swabs from women. Urine is not an optimal specimen in women as test sensitivity is significantly lower.

Men and Women

Syphilis Serology

A blood sample is routinely taken for syphilis serology. There are a number of serological tests available for diagnosing

Table 2.1 Routine tests performed on women with symptoms (e.g. vaginal discharge, soreness)

Procedure	Test	Diagnosis
Vaginal swab	Gram stain: microscopy	Assess bacterial flora (predominance of lactobacillus morphotypes is normal) Bacterial vaginosis Candidiasis
	Wet mount: microscopy	Trichomoniasis Candidiasis
	Culture	*Candida* *Trichomonas vaginalis*
Cervical swab	Gram stain: microscopy	>30 polymorphs/HPF suggests cervicitis Gram-negative diplococci inside polymorphs → presumptive diagnosis of gonorrhoea
	[a]Culture	*Neisseria gonorrhoeae*
Cervical swab	Nucleic acid amplification test (NAAT)	*Chlamydia trachomatis* *Neisseria gonorrhoeae*
Cervical cytology	(If indicated)	
[a]Urethral swab	Gram stain: microscopy	Polymorphs may be seen in: chlamydial infection, gonorrhoea, trichomoniasis Gram-negative diplococci inside polymorphs → presumptive diagnosis of gonorrhoea
	Culture	*Neisseria gonorrhoeae*

[a]Many clinics only perform culture for *Neisseria gonorrhoeae* and microscopy of cervical and urethral samples when the clinical history or examination suggest a possible diagnosis of gonorrhoea

syphilis; commonly used ones include *Treponema pallidum* antibody, VDRL, and TPHA or TPPA. Screening in GU medicine and antenatal clinics and on donating blood for transfusion has proved successful in keeping syphilis prevalence extremely low in the UK, although in recent years we have seen an increase in syphilis prevalence in certain areas.

Hepatitis Screening

Many clinics offer hepatitis B screening and vaccination for injecting drug users and homosexual men and hepatitis C screening for injecting drug users.

HIV Antibody Testing

This is now routinely offered to patients attending GU medicine clinics for screening or testing for STIs and to all women as part of their antenatal care in England and Wales. Some clinics provide a "point of care testing service" where results are available "while you wait". This aims to encourage individuals to be tested who are otherwise deterred by the prospect of a wait for several days for the results.

Chapter 3
Taking a Sexual History

Whereas most patients attending a GU medicine/Sexual Health clinic will expect to be asked questions about sex, this is by no means always the case in primary care, even though the patient may have presented with genital symptoms. GU medicine clinicians spend their days asking patients fairly intimate questions about sexual habits and lifestyle and therefore feel comfortable with the questions and the replies. Most general practitioners (GPs) will only infrequently need to take a sexual history and a degree of uncertainty regarding which questions to ask and how best to ask them is inevitable. The purpose of this short chapter is to provide basic guidelines on how to approach the patient presenting with genital symptoms or who is concerned that they may have acquired an infection from a sexual partner.

An unmarried female patient presenting with vaginal discharge provides a useful example of one possible approach to sexual history taking.

Important questions are:

- How long has the discharge been present?
- Is there any malodour? (? bacterial vaginosis)
    - Is there any associated vulval irritation or soreness? (? candidiasis)

C. Sonnex, *Sexual Health and Genital Medicine in Clinical Practice*, In Clinical Practice,
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  - Is the discharge white (? candidiasis ? bacterial vaginosis) or
  - yellow (? trichomoniasis ? cervicitis)

– Have there ever been any previous similar episodes?

If so:
– what was the diagnosis?
– which treatments have been used?
– have any previous treatments helped?
– Have you experienced any pelvic pain? (? endometritis/ pelvic inflammatory disease (PID))
– Has there been any bleeding between periods? (? endometritis)
– When was your last period?
– Has there been any discomfort or pain during sexual intercourse (the terms 'when making love' or 'when having sex' are preferred by some clinicians; use whichever you think will be appropriate for the patient and with which you feel comfortable)
– When did you last have intercourse/have sex/make love?
– Was this your regular partner?

1. If no:
   – was this with someone you know well or a fairly casual contact (? able to contact again)?
   – was this a male partner or a female partner?
   – was he or she from this country?
   – had they recently spent any time abroad?
   – have you had sex with any other partners in the past few months?

2. If yes:

   – is this a male partner or a female partner?
   – when did you last have sexual contact with someone other than your regular partner? (This may be more appropriate left to the end of the consultation.)

> Direct eye to eye contact usually works best for the more intimate questions. The last question can be difficult as patients are usually embarrassed to admit an 'extramarital' or casual affair, so you need to try to achieve a lack of surprise and concern whatever the reply.

If a male partner: has he mentioned that he has symptoms? For example, a penile rash or any discomfort passing urine?

What are you using for contraception? (Consistent use of condoms provides good protection against chlamydial infection and gonorrhoea)

Are you currently on any medication? (Some antibiotics predispose to candidiasis. Fixed drug eruptions may present as fairly extensive areas of erythema or ulceration on the external genitalia.)

You will appreciate that a number of these questions are aimed specifically at determining the risk of sexually transmitted infection. They may not be relevant to the patient with clinically obvious vaginal 'thrush' but should be considered in women with, for example, troublesome vaginal discharge unresponsive to treatment.

If a woman's last sexual contact was with another woman, it is worth enquiring when they last had sexual contact with a man. Women who are exclusively lesbian are unlikely to have chlamydial or gonococcal infection whereas bacterial vaginosis appears to be slightly more common in lesbian than in heterosexual women.

A similar line of questioning to the above is required for men attending with genital symptoms such as dysuria, urethral discharge, epididymal tenderness or genital ulceration. You should directly enquire:

- when they last had sexual intercourse
- whether this was with a 'regular' or 'casual' partner
- whether this was with a male or female partner
- whether there have been other sexual contacts in the previous few months.

With men who have sex with men (MSM), one should also obtain a little more detail about clinically relevant sexual practices. For example:

Do you usually practice 'safe-sex'? (e.g. body-rubbing, mutual masturbation)?

When did you last have penetrative intercourse?

When you have penetrative intercourse do you usually penetrate your partner (ano-insertive, sometimes called 'active') or does he penetrate you (ano-receptive, sometimes called 'passive') or is there both?

- if predominantly ano-insertive, when were you last ano-receptive?
- if predominantly ano-receptive, when were you last ano-insertive?
- do you routinely/always use condoms?
- are you having any problems with condoms splitting or tearing? (extra strong condoms are readily available; certain lubricants can damage condom latex

When did you last have oral sex? (Some infections can be passed from the throat to the urethra, e.g. chlamydia, gonorrhoea. HIV may also be transmitted by orogenital contact)

Were you active and/or receptive? (i.e. your penis into partner's mouth or vice versa).

Other sexual practices that may lead to the transmission of infection or clinical complications include:

- 'rimming' (oro-anal contact): intestinal pathogens, hepatitis A
- 'fisting' (hand insertion into rectum): damage to the anal sphincter, rectal tears.

The issue of HIV infection should be raised when discussing which tests to perform and I would recommend a low threshold for testing. Approximately one third of patients infected with HIV in the UK are unaware they are infected. As mentioned in Chap. 19, with the range of highly effective treatment available, HIV infection is now considered a chronic disease. Early diagnosis allows for optimal management with

anti-retroviral treatment being started before the immune system becomes too damaged (i.e. before the CD4 lymmphocyte count drops below 350/mm^3). Knowing HIV status also allows for behavioural modification to reduce the risk of passing the infection to sexual partners.

Syphilis is also appearing once again in the UK with oral sex proving an important route of spread amongst men who have sex with men.

Chapter 4
Bacterial Vaginosis

Bacterial vaginosis (BV) is more common than 'thrush' and is probably the commonest cause of abnormal vaginal discharge seen in primary care. The condition is certainly underdiagnosed and frequently misdiagnosed. BV was formerly known as 'Gardnerella' and is caused by an overgrowth of predominantly anaerobic bacterial species which are commonly present in low concentrations in the healthy vagina (e.g. *Gardnerella vaginalis*, *Prevotella* species, *Mobiluncus species*, *Mycoplasma hominis*, *Atopobium vaginalis*). Recent studies have identified a vaginal biofilm consisting mainly of Gardnerella and Atopobium, which suggests these organisms are critical in the aetiology of BV.

The condition is not sexually transmitted but is associated with the presence of other genital infections. Although many clinicians regard BV as a fairly insignificant condition this is certainly not the case for the majority of sufferers. Many women find the amount of discharge, and in some cases the associated malodour, to be particularly distressing. In addition, there is evidence that BV is associated with preterm labour, late miscarriage, chorioamnionitis, postpartum endometritis, pelvic infection following surgery and termination of pregnancy and, possibly, PID.

BV has been reported to increase the risk of both acquisition and transmission of HIV.

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Symptoms

The commonest presenting symptom is excessive vaginal discharge, sometimes with a slight malodour. Some women regard a fishy vaginal odour as normal and are surprised and grateful when BV is eventually diagnosed and treated. Malodour may only be noticeable after unprotected sexual intercourse, owing to the release of amines by alkaline semen (see 'amine test' below). Vulval irritation is uncommon. As with candidiasis, many women with BV are asymptomatic.

Diagnosis

The following are the two most important methods of diagnosis.

1. Microscopy of vaginal secretions
   The most important method of diagnosis is microscopy of vaginal secretions.

   BV produces a highly characteristic appearance on Gram staining. There is an absence of lactobacilli and an excess of Gram-variable or Gram-negative rods (e.g. *Gardnerella*, *Prevotella*; Figs. 4.1 and 4.2). In some cases Gram-negative 'curved rods' (*Mobiluncus*) may be seen. As vaginal inflammation (vaginitis) is not a feature of BV, few polymorphs are present.
2. Amine test
   This test involves the addition of two drops of 1–5 % potassium hydroxide solution to a sample of the vaginal secretions, either on a slide or on a swab. The sudden release of a fishy odor represents a "positive" result. The odor results from volatilization of polyamines, in particular trimethylamine, that are thought to be produced by the anaerobic bacteria.

   Compared with microscopy, the "amine test" has a sensitivity of 80–90 % and a specificity of well over 90 %. The test is easy, quick, and inexpensive to perform and should

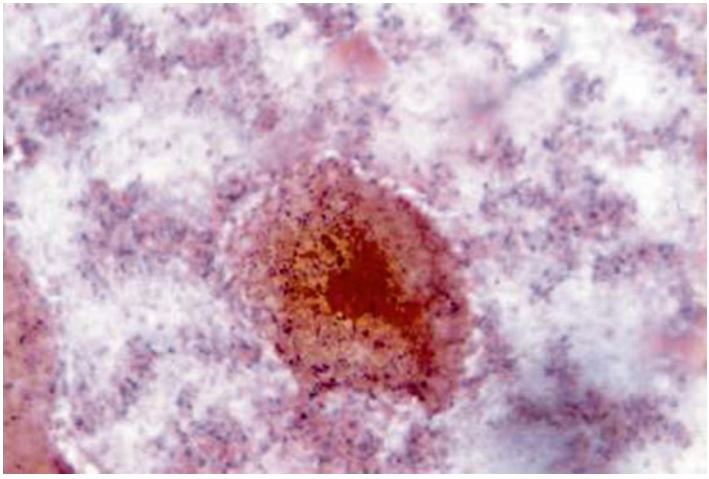

FIGURE 4.1 Gram stain of vaginal discharge due to bacterial vaginosis – lactobacilli replaced by *Gardnerella vaginalis*, *Prevotella* species, *Mycoplasma hominis*, and other predominantly anaerobic bacteria

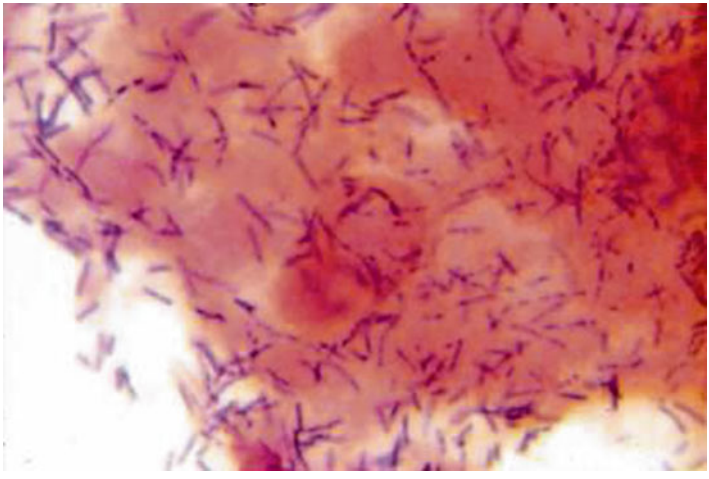

FIGURE 4.2 Gram stain of vaginal secretions showing lactobacilli

be part of the initial assessment of all women with vaginal discharge.

Although the amine test may be performed on air-dried swabs some hours or days later, the main advantage of the test is that it can be performed during the consultation. The odor produced is short lasting and, despite some claims to the contrary, does not linger in the room where the test is performed. Testing is probably best performed out of sight of the patient.

The following are other diagnostic criteria mentioned in the textbooks but less helpful than microscopy and amine testing.

3. Vaginal pH
In BV, vaginal pH is raised from the normal value of 4.5 to above 5.0. Unfortunately, this is not specific and probably signifies simply a reduction in the number of lactobacilli. (Lactobacilli are the predominant bacterial species in the healthy vagina and maintain a protective acid environment in the vagina by, we think, producing lactic acid from vaginal glycogen.) In addition, a raised pH may be found in a woman with a normal vaginal flora if testing is performed when menstrual blood or semen is present or if cervical mucus is inadvertently sampled instead of vaginal secretions. BV, however, is very unlikely to be present if the pH is normal.
4. Appearance of the discharge
Although the vaginal discharge in BV is classically thin, homogeneous with a creamy or milky consistency and a slight froth (Fig. 4.3), this is by no means always the case, and in most studies the appearance of vaginal secretions has been shown to be a poor diagnostic marker.

High vaginal swab culture has no place in diagnosis because the presence of *Gardnerella vaginalis* or anaerobes does not necessarily indicate the presence of bacterial vaginosis. The detection of combinations of BV associated bacteria by NAAT may prove to be the optimal diagnostic test but this is not yet available. As mentioned above, microscopy is currently the diagnostic test of choice.

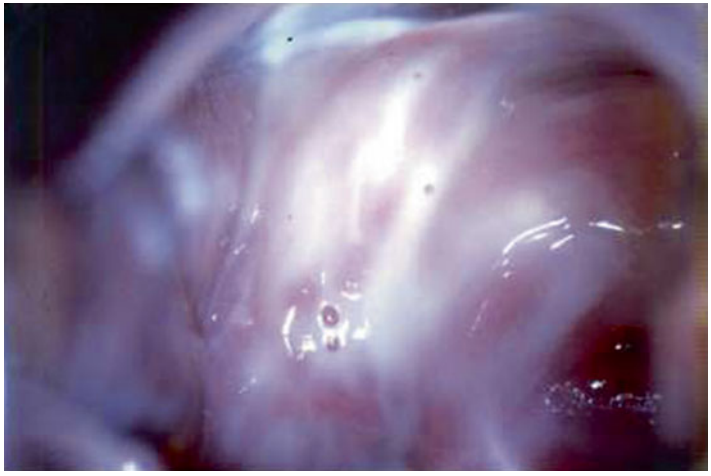

FIGURE 4.3 Bacterial vaginosis – creamy, homogeneous discharge coating the vaginal wall

Treatment

There are a few options available.

- Oral metronidazole is an extremely effective treatment and various regimens have been used: 2 g suspension stat dose; 400–500 mg bd for 5 days; 200 mg tds for 7 days.
- Intravaginal metronidazole gel (0.75 %) daily for 5 days
- Although patients are advised to avoid alcohol whilst taking metronidazole (possibly also when used intravaginally) owing to a disulfiram effect this is an uncommon problem.
- Intravaginal clindamycin cream (2 %) daily for 7 days is a useful alternative for patients who cannot tolerate metronidazole. Mention should be made of the fact that Clindamycin cream may weaken latex condoms.

Treatment is currently reserved for women with symptoms. A case could be made for treating asymptomatic women prior to hysterectomy, endometrial biopsy, termination of pregnancy, hysteroscopy, dilatation and

curettage (D & C) and intrauterine contraceptive device (IUCD) insertion, although there are no studies supporting this for the latter three procedures. The possibility of inoculating the uterus with bacteria capable of causing endometrial infection does lend support to the suggestion that BV should be treated prior to any procedure involving instrumentation through the cervix, but this is non-evidence based.

Studies assessing whether treating BV in pregnancy reduces the risk of preterm labour have given conflicting results. Some of those studies failing to show a benefit have been criticised regarding the timing of diagnosis. Diagnosing and treating BV very early in pregnancy may be important. It is reasonable to say that on current evidence treatment should be considered before 20 weeks gestation in women with additional risk factors for preterm birth and in particular those with a past history of preterm labour of uncertain cause or late miscarriage, the drugs recommended for treating BV are safe to use in pregnancy. Meta-analyses show no evidence of teratogenicity with metronidazole.

Recurrent Bacterial Vaginosis

A recurrence is seen in about 20 % of women after treatment irrespective of the drug used. This is often a 'bacteriological' recurrence (i.e. BV is diagnosed on microscopy) rather than symptomatic recurrence. However, some women do experience frequent symptomatic recurrences which, as with recurrent candidiasis, often effects sexual relationships and causes a degree of psychological morbidity. Treating sexual partners has been shown to have no effect on reducing the recurrence rate. There is a reported association between BV and the IUCD and in women with particularly troublesome recurrences an alternative form of contraception should be considered. Using condoms for a few months may prove beneficial for some patients, for reasons currently unknown.

A short course of oral metronidazole or intravaginal clindamycin or metronidazole once or twice a month is certainly worth considering as a prophylactic measure (the necessary studies are awaited). Intravaginal probiotics or lactic acid gel used for a few days post-menstruation may also prove beneficial, although clinical data are somewhat limited.

Chapter 5
Candidiasis

General practitioners are all too familiar with this condition, so there is little to be gained by reiterating common knowledge. There are, however, a few points worth making.

Although *Candida albicans* is the commonest cause of vulvovaginal infection, other strains such as *Candida glabrata*, *Candida parapsilosis*, *Candida tropicalis*, may also occasionally produce symptoms. *Candida glabrata* is thought to account for about 5 % of vaginal infections.

Accurate identification of *Candida* spp. is particularly important when dealing with persistent or recurrent infection; however, this identification may not be available routinely in all microbiology laboratories. Non-*albicans* strains of *Candida* often show partial or complete resistance to the commonly used topical and oral antifungal agents.

Oral antifungals (e.g. fluconazole, itraconazole) are extremely effective, easy to use and appear to be safe. They are, however, rather more expensive than topical treatments and should not be used in pregnancy.

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Recurrent Candidiasis

A small number of women are plagued by frequent recurrences of vulvovaginal candidiasis. The reasons are unclear, although there is some evidence to suggest a localised *Candida*-specific defect in cell-mediated immunity. When a patient presents complaining of 'recurrent thrush' one of the most important first steps in management is to make sure that the diagnosis is correct (see below).

Practical Points

Whenever possible try to send a vaginal swab for *Candida* culture on each occasion that symptoms are present. Failure to culture the yeast makes the diagnosis less likely.

If symptoms persist and *Candida* continues to be isolated after treatment, ask the laboratory to identify the *Candida* species and report on its sensitivities to the various antifungals. This may require the sample being sent to a reference laboratory. Non-*albicans* strains of *Candida* are often resistant to imidazoles (e.g. clotrimazole, miconazole, econazole) and triazoles (fluconazole, itraconazole) but may respond to topical nystatin (a polyene).

Consider a trial of an oral antifungal, such as fluconazole 150 mg stat followed by 50 mg daily for 1 week or itraconazole 200 mg bd for 1 day followed by 200 mg daily for 1 week. Lack of clinical response suggests that *Candida* is not the cause of the symptoms or that a resistant strain of *Candida* is present. Symptoms of vulval irritation, with or without discharge, which initially improve with antifungal treatment but then recur some days or weeks later are highly suggestive of candidiasis.

Differential Diagnoses

Bacterial Vaginosis

Consider **bacterial vaginosis** in a woman with recurrent vaginal discharge that fails to respond to antifungal treatment. Vulval irritation is unusual in this condition.

Vulval Dermatoses (See Chap. 8)

A reasonable number of women with presumed persistent (rather than recurrent) 'thrush' have been misdiagnosed and have a dermatosis. Vulval seborrhoeic dermatitis, lichen sclerosus, lichen simplex and lichen planus are not uncommon but any skin condition can affect the genitalia. Dermatoses often lose some of their characteristic features when affecting the vulval epithelium and a biopsy may be required to make the correct diagnosis. Some patients with a vulval dermatosis will have other body sites affected. In cases of contact dermatitis there is often a history of allergy or a family history of atopy. Potential vulval sensitising agents include topical medications (e.g. steroid creams, antifungal creams), KY jelly (propylene glycol sensitivity), spermicidal creams, sanitary pads, dyed lavatory paper, bubble-baths and scented soaps (although prolonged soaking in a bath rather than fleeting contact with showering is required to produce a hypersensitivity reaction).

Management of Recurrent Candidiasis

Once you are satisfied that the diagnosis is correct the following points are worth considering.

Prophylactic Antifungals

Women with peri-menstrual thrush may benefit from prophylactic anti-fungal therapy either before or just after the period, either as a pessary or oral agent. Examples include a single clotrimazole 500 mg pessary or fenticonazole 600 mg pessary, oral fluconazole 150 mg or itraconazole 200 mg bd for 1 day. Once monthly prophylaxis is insufficient for some women in which case try fortnightly or possibly weekly or, rarely, a more frequent regimen. Prophylaxis should be continued for 3–6 months and then stopped and the situation reassessed.

Treatment of Male Sexual Partners

Treating the male partner with an antifungal cream does not reduce the frequency of recurrent episodes in the female. Men should therefore only receive treatment if they have evidence of candidal infection themselves (i.e. a balanitis or posthitis).

Treatment of the "Gut Reservoir"

Early studies suggested that recurrences of vaginal candidiasis result from reinfection from the gut. This is now considered unlikely and indeed more recent work has failed to show any benefit from the use of oral nystatin. Intestinal colonization by *Candida* therefore appears to play no role in recurrent vaginal infection and can be ignored.

"Deep-Seated" Vaginal Infection

Failure to eradicate *Candida* from the 'deeper layers' of the vaginal mucosa has led some clinicians to suggest using

longer courses of antifungal treatment. This is still an issue of debate, but consider treating acute recurrences with a 2-week course of antifungal pessaries or oral agents.

Diet

There is no evidence to suggest that a diet high in sugars or carbohydrates predisposes to thrush although there are anecdotal reports of 'sugar binges' precipitating symptoms. One study of particular interest reported a reduction in vaginal *Candida* colonisation among women ingesting 8 oz of yoghurt daily. A 'natural' yoghurt was used, supposedly containing *Lactobacillus acidophilus*. Although this work still requires confirmation with a larger number of patients and a placebo arm, yoghurt supplementation sounds attractive and would probably be well accepted. Interestingly, many of the so-called 'live' or 'natural' yoghurt products on the market do not contain *Lactobacillus acidophilus* or contain only 'non-vaginal' strains of lactobacilli.

A small number of studies performed some years ago found an association between low zinc status and recurrent vaginal infection including recurrent candidiasis. This has led some clinicians to suggest a trial of oral zinc supplements for 1 or 2 months in women with particularly troublesome thrush, although the outcome is usually not very successful.

Garlic contains an antifungal, allicin, and has been advocated as a treatment for thrush; however, current evidence suggests that the amount of garlic required to provide clinically useful levels of allicin in the vagina may be socially unacceptable and possibly damaging to the oesophagus.

Diabetes

Poorly controlled diabetes may predispose to thrush, but it is very uncommon to find diabetes in women with recurrent infection; however, it is prudent to dipstix the urine.

Oral Contraceptive Pill

Theoretical evidence suggests that the pill could play a role in potentiating vaginal candidiasis. A cytosol receptor for oestrogen has been reported in *Candida albicans* and certain hormones have been shown *in vitro* to stimulate yeast mycelial formation and hence virulence. In spite of this evidence, recent studies have failed to show an association between low-moderate dose oral contraceptive pill use and recurrent candidiasis. However, a switch from a combined contraceptive pill to a progesterone-only pill has been reported to be successful in some women with recurrent symptomatic infection.

Iron Deficiency Anemia

This does not predispose to recurrent thrush.

Bubble-Baths and Scented Soaps

The irritation associated with candidal vulvitis may be aggravated by bubble-baths and scented soaps but there is no evidence that these would cause an episode of thrush.

Tight-Fitting Clothing

Women with recurrent thrush are often advised to avoid wearing nylon underwear and tights. The theory is that the increased humidity generated by the nylon may lead to mild epithelial maceration and subsequently lead to fungal invasion of the superficial tissue and hence to symptomatic infection. This is anecdotal but loose clothing does provide a degree of comfort to some women during recurrences.

Antibiotics

A number of women are prone to develop thrush during courses of oral antibiotics. This may be due to the elimination of the protective vaginal lactobacilli or to a direct potentiating effect on yeast growth. Prescribing a course of antifungals together with antibiotics is worth considering and is usually much appreciated by the patient.

Douches

Vinegar or sodium bicarbonate douches provide symptomatic relief for some women. It should be remembered that douching may facilitate the spread of lower genital tract bacteria into the uterus and is not to be generally recommended unless a screen for genital infection has been performed and proved negative.

Boric Acid

Gelatin capsules of boric acid have been successfully used to treat persistent vaginal candidiasis, in particular *Candida glabrata* infection. The recommended dosage is 600 mg bd for 2 weeks and as the capsules are not generally available these need to be made up by a kindly pharmacist. As prolonged absorption of boric acid causes anorexia, vomiting, skin rash and anaemia, further study is required on the safety and efficacy of maintenance therapy.

Hormonal Therapy

There are anecdotal reports of successful treatments of recurrent *Candida albicans* and persistent *Candida glabrata*

infection with progestogens, for example dydrogesterone or medroxyprogesterone acetate.

Summary of Recurrent/Persistent Vaginal Candidiasis

1. Make sure that the diagnosis is correct. Dermatoses often present with vulval irritation.
2. Identify the *Candida* spp. and check sensitivities to antifungals.
3. Treat initially with a longer course of antifungals.
4. Use monthly, fortnightly, or weekly oral or topical antifungals for 3–6 months as prophylaxis.
5. No need to treat male partners with antifungals unless symptomatic (i.e. penile rash present).

The clinical and microscopic features of candidiasis are shown below (Figs. 5.1, 5.2, 5.3, 5.4, 5.5, and 5.6). See also Chap. 15 for candidiasis in men.

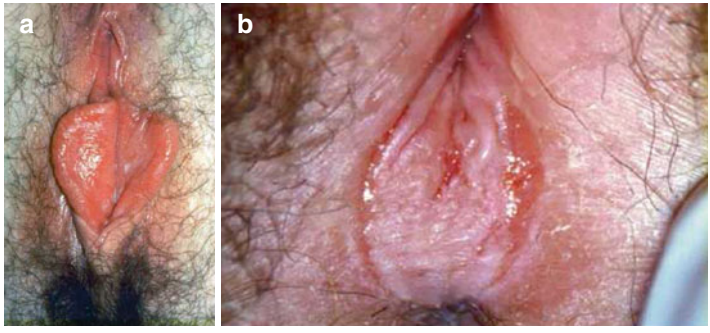

FIGURE 5.1 (**a**) Vulvitis due to candidiasis. (**b**) Perineal fissures due to candidiasis

FIGURE 5.2 Candidiasis – 'lumpy' white discharge

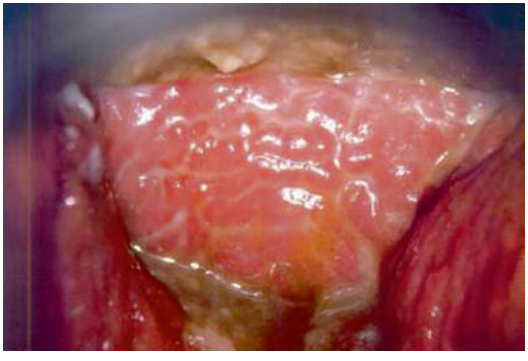

FIGURE 5.3 Candidiasis – vaginitis with a watery discharge

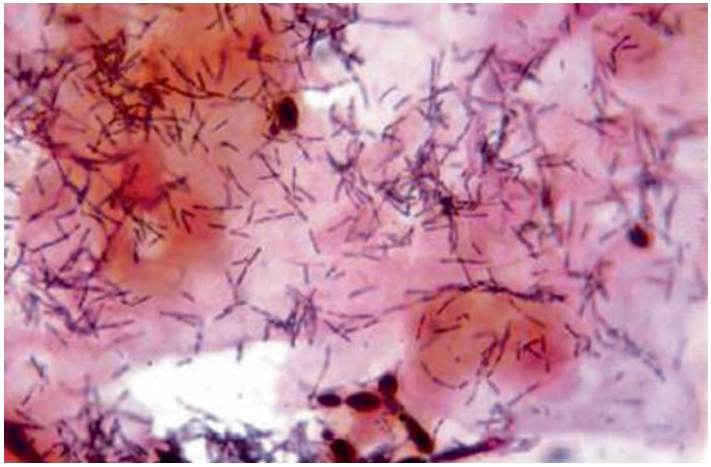

FIGURE 5.4 Gram stain of vaginal discharge due to candidiasis showing spores and pseudo-hyphae (lactobacilli also present)

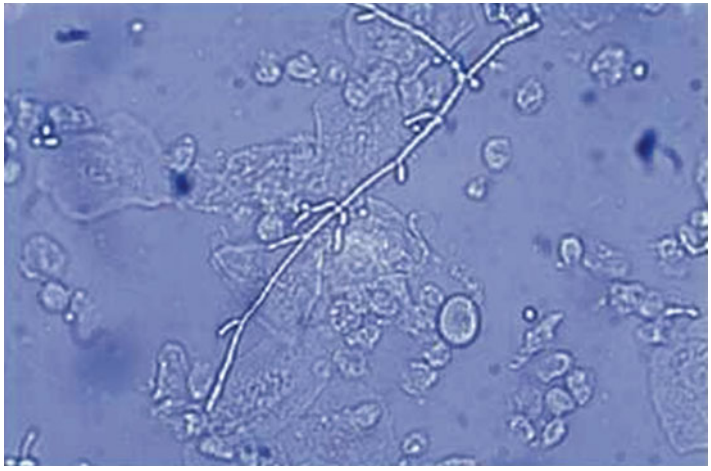

FIGURE 5.5 Wet-mount preparation showing budding pseudo-hyphal strand

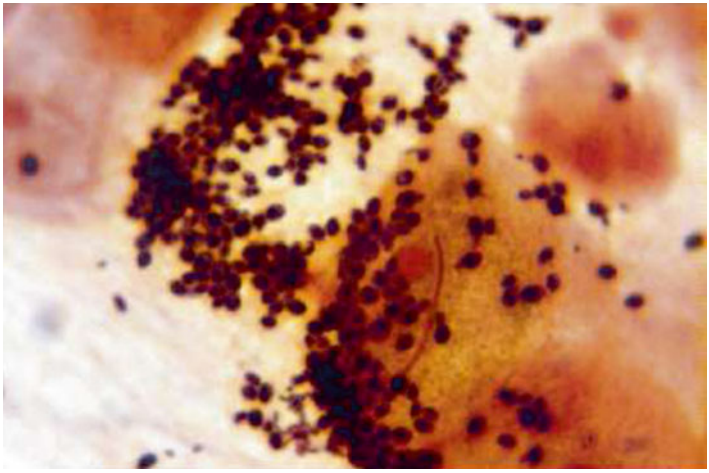

FIGURE 5.6 Gram stain of vaginal discharge due to *Candida glabrata* showing multiple spores without hyphae

Chapter 6
Other Causes of Vaginal Discharge

Trichomoniasis

Trichomoniasis has become less common in recent years and usually presents as quite a heavy yellow discharge associated with vulval and vaginal soreness. The motile trichomonads are easily seen on wet-mount microscopy (i.e. examination of a sample of vaginal discharge in a drop of normal saline under a coverslip; Fig. 6.1); however, as this is rarely available in non-GU medicine settings, the diagnosis can be made by 'point of care testing' (e.g. OSOM Trichomonas Rapid Test), by vaginal swab nucleic acid amplification testing (NAAT) or culture. When attempting to culture the organism, the sample should be transported to the laboratory as soon as possible as the organism is quite friable.

Treatment is with oral metronidazole, either as a 2 g stat dosage or 400–500 mg twice daily for 5–7 days. Metronidazole is better tolerated if taken with or after food and alcohol should be avoided during treatment and for 24 h afterwards, although many individuals find there is no interaction with alcohol.

Most cases of trichomoniasis are sexually transmitted; sexual partners should therefore be assessed and treated. Men usually carry the infection without symptoms.

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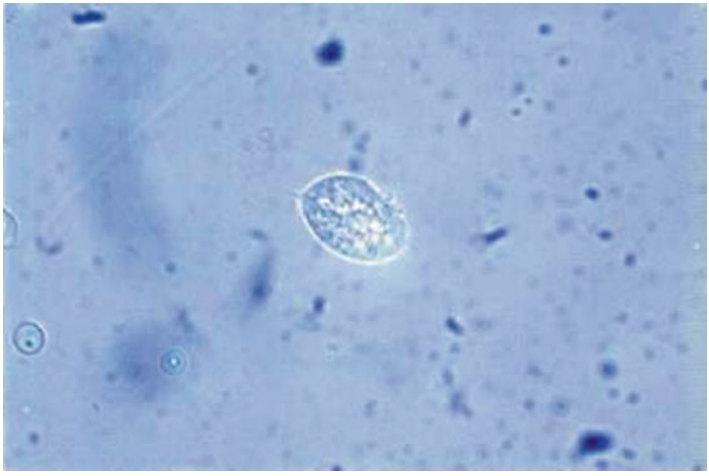

FIGURE 6.1 Wet-mount preparation showing a trichomonad (*Trichomonas vaginalis* infection)

Streptococcal Infection

Streptococci are often isolated on vaginal and vulval swab culture but are usually not the cause of symptoms and are considered secondary to an underlying 'other condition', such as candidiasis or a dermatosis. Lancefield Group A and Group B streptococci do rarely cause a vaginitis, which usually presents with a marked vaginitis with a serosanguineous discharge.

Desquamative Vaginitis

This is an uncommon cause of discharge of unknown aetiology. The appearance is that of trichomoniasis, there being a marked vaginitis and profuse yellow discharge (Fig. 6.2). Colposcopic examination of the vagina and cervix may show a macular pattern (as is often seen in trichomoniasis– so-called "strawberry cervix"). Gram stain and microscopy of

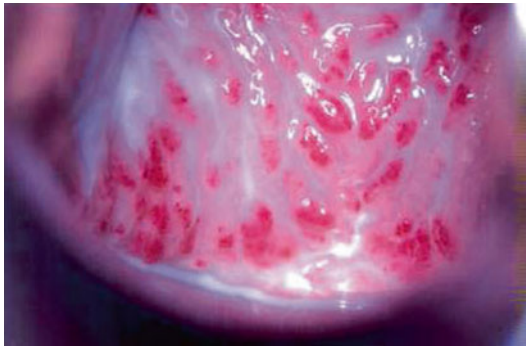

FIGURE 6.2 Macular vaginitis – seen in some cases of Trichomoniasis and desquamative vaginitis

the discharge shows an absence of lactobacilli with cocciform bacteria and vaginal basal epithelial cells present (as seen in a post menopausal woman with an atrophic vaginitis). There is often a good response to intravaginal Clindamycin cream.

Foreign Objects

Liberal views on sexual experimentation have led to various devices becoming lodged or even lost in the vagina. Although the patient is usually only too aware that something has "gone missing," occasionally bits of "sex toys" can break off unknowingly and give rise to a vaginal discharge some days later.

More commonly a tampon can inadvertently be pushed deep into the vagina and be forgotten. After a few days this produces an unpleasant smelling discharge. Bits of tampons occasionally latch onto threads of an IUCD and later cause problems. These small pieces of cotton wool can often be very difficult to detect. Similarly, small fragments of toilet paper can be left at the entrance of the vagina following a hurried wipe after urination. Sexual activity can push these deep into the vagina only to produce a discharge after a few days.

Very occasionally condoms split during intercourse with the result that fragments of rubber may be retained in the vagina and eventually give rise to a malodorous discharge.

Cervicitis

Cervical inflammation may cause a mucopurulent discharge which, although originating from the cervix, presents as a yellow vaginal discharge, sometimes blood stained.

Important Points

Cervicitis is often difficult to distinguish from cervical ectopy as in both cases the cervix appears red to the naked eye. Indicators of cervicitis include mucopurulent secretions (Fig. 6.3) and contact bleeding on touching the cervix with a cotton wool swab, e.g. when taking an endocervical swab for NAATs for chlamydia and gonorrhoea detection. Bleeding associated with taking a cervical smear does not necessarily indicate cervicitis. In GU medicine/Sexual Health clinics, cervical secretions are often examined under the microscope and the number of polymorphs present quantified. A count of greater than 30 polymorphs per high power field (HPF – X1000 magnification) is suggestive of a cervicitis.

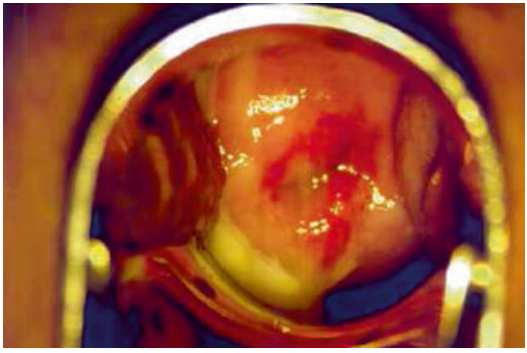

FIGURE 6.3 Mucopurulent cervicitis

A cervical ectopy may produce excessive mucus in the absence of infection. This can be treated by cryotherapy, silver nitrate cautery or diathermy but should only be considered when infection has been adequately checked for and discounted.

1. *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are common causes of cervical infection and often cause a cervicitis. These infections are now diagnosed by NAATs, either from practitioner obtained cervical samples or self-obtained vaginal samples. Culture for *Neisseria gonorrhoeae* should be performed if this is considered a possible diagnosis as this provides antibiotic sensitivities, unavailable from the NAAT. Remember that the gonococcus is a fragile organism and therefore the sample must be transported to the laboratory as soon as possible; if there is likely to be an overnight delay then keep the swab at room temperature rather than in the refrigerator. Women with suspected gonorrhoea should ideally be referred to GU medicine. The sites of gonococcal infection include the cervix (not vagina), urethra, rectum and pharynx and samples should be taken from these sites if deemed appropriate from the sexual history. Owing to the anatomical close proximity of anus and vagina, rectal infection may be present in the absence of a history of anal intercourse.
2. In many cases no causative organism can be found and the diagnosis is that of 'non-specific cervicitis' (the female equivalent of 'non-specific urethritis'). *Mycoplasma genitalium* is recognised as an important cause of cervicitis although currently this is not routinely checked for in many laboratories.

Management of Cervicitis

Non-specific cervicitis and chlamydial infection should be treated with a tetracycline (e.g. doxycycline 100 mg bd for 7 days), azithromycin 1 g stat or ofloxacin 200 mg bd or 400 mg once a day for 7 days. Longer courses of azithromycin

(e.g. 500 mg stat followed by 250 mg daily for 6 days) or moxifloxacillin (400 mg daily for 7–10 days) appear to be more effective at eradicating *Mycoplasma genitalium* infection.

Sexual partners of women with cervicitis should be assessed for urethritis; this is often asymptomatic. Failure to treat partners may lead to reinfection.

As mentioned above, patients with suspected gonorrhoea should be referred to GU medicine/Sexual Health for treatment, follow-up and contact tracing (partner notification). If the diagnosis of gonorrhoea has been confirmed by culture and there is a delay before the patient can be seen by GU medicine, consider treating with intramuscular ceftriaxone 500 mg together with oral azithromycin 1 g stat and then refer to GU medicine for follow-up and contact tracing.

Penicillin, ciprofloxacin and, recently, cephalosporin resistant gonorrhoea is now seen in the U.K., hence the recent move to using high dose intramuscular ceftriaxone. Intramuscular spectinomycin may be required for multiply resistant gonococcal infections but we are now moving into specialist territory. Most laboratories should provide details of antibiotic sensitivities for their gonococcal isolates.

Physiological Discharge

Many women present with excessive vaginal discharge for which no infective cause can be found. In some cases this will be an increased awareness or a true increase in volume of normal vaginal secretions. Desquamated vaginal epithelial cells, cervical mucus and transudated fluid from the vaginal mucosa are the main constituents of normal vaginal secretions and the amount produced may vary with the phase of the menstrual cycle. It is worth emphasising that physiological discharge should only be diagnosed when both microscopy and laboratory testing of vaginal and cervical secretions prove negative; a clinical judgment is insufficient. Explaining the nature of the discharge and providing reassurance that no infection is present is often all that is required in the way of

management. If the discharge is particularly troublesome, gentle douching with a sodium bicarbonate solution may be considered. Because of the increased risk of pelvic infection associated with douching it is important to ensure that infection is absent, in particular bacterial vaginosis and *Chlamydia*.

Some women with cervical ectopy produce an excessive amount of mucus and will often describe their discharge as 'thick and stringy'. Non-infected cervical mucus is clear or white; yellow mucus is highly suggestive of infection. Irrespective of the clinical findings the appropriate swabs must be taken to check for infection (see above) in addition to cervical cytology, if this has not been performed within the recommended time frame. Treatment of cervical ectopy with cryotherapy, silver nitrate cautery or diathermy should be considered once infection and cervical pathology have been excluded.

Chapter 7
A General Approach to the Management of Vaginal Discharge

It would be impractical, and indeed unnecessary, to refer all women with an abnormal vaginal discharge to GU medicine/Sexual Health. Many women self-diagnose 'thrush' and approach their GP requesting a repeat prescription of antifungals without investigation or examination. This is not an ideal approach to management. Confirmatory vaginal swabs should be taken on at least some occasions and if this is considered 'difficult', for whatever reasons, then a GU medicine referral is advisable. There is also some concern that the availability of topical anti-'thrush' treatments without prescription may considerably delay some women from seeking professional help.

There are a few other points worth considering when deciding whether to refer a patient to GU medicine.

1. In addition to obtaining optimal specimens for nucleic acid amplification tests (NAATs) and culture, microscopy of vaginal and cervical secretions is performed routinely in all GU medicine clinics which enables the clinician to make, in many cases, an immediate diagnosis. Microscopy is an invaluable method of assessing the general health of the vagina and cervix. For example, a woman with symptomatic discharge showing a predominance of lactobacilli on the vaginal Gram stain, a normal cervical Gram stain and

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negative vaginal and cervical NAATs and cultures is most likely to have a physiological discharge.

2. The two commonest causes of vaginal discharge seen in general practice and amongst attenders at GU medicine are candidiasis and bacterial vaginosis, neither of which are sexually transmitted. Microscopy of vaginal secretions is essential to accurately diagnose bacterial vaginosis; high vaginal swab culture is of no use.
3. There are a few key questions that may give a clue to the diagnosis:
   - Irritation or soreness is suggestive of candidiasis.
   - A malodorous discharge is suggestive of bacterial vaginosis.
   - Intermenstrual bleeding or pelvic discomfort, a recent change of sexual partner, and the use of non-barrier contraception increase the likelihood of sexually transmitted infection.
4. Which swabs to take? A vaginal Stuart's swab for microbiological culture is usually adequate to detect vaginal infection and a cervical or vaginal swab for a NAAT will detect chlamydial and gonococcal infection. It is worthwhile checking with your laboratory that both of these organisms are checked for by the single NAAT swab.
5. Some laboratories may not look for *Trichomonas vaginalis* infection unless mentioned on the request form; again check with your laboratory. It is important that the swab reaches the laboratory as soon as possible for culture as *Trichomonas vaginalis* may not survive an overnight delay. Keep genital specimens at room temperature if there is likely to be a delay before reaching the laboratory.
6. *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infection are usually diagnosed by nucleic acid amplification tests (NAATs). This requires a practitioner obtained cervical or vaginal swab or a self-obtained vaginal swab. Although both chlamydia and gonorrhoea infect the cervix and urethra and not the vagina in adult women, contamination of the vagina from these other sites and the extreme

sensitivity of NAATs means that a vaginal swab is appropriate for diagnosis.
7. Bacterial vaginosis cannot be diagnosed from a vaginal swab unless a Gram stain is prepared.

Guidelines for the management of vaginal discharge are summarized in Table 7.1.

Table 7.1 Diagnosis and management of vaginal discharge

	Possible diagnosis
1. *Take a history*	
Any suggestion of sexually transmitted infection (e.g. recent change of sexual partner)	
Vulval irritation or soreness	Candidiasis or trichomoniasis
Malodor	Bacterial vaginosis
2. *Examination*	
Vulval/vaginal erythema	Candidiasis or trichomoniasis
"Lumpy" or "curd-like" discharge	Candidiasis
Smooth, homogeneous, slightly frothy discharge	Bacterial vaginosis
Moderately heavy yellow discharge	Trichomoniasis; cervicitis
Yellow cervical mucus ± contact bleeding on gently swabbing the cervix	Cervicitis
3. *Investigations*	
(a) Vaginal swab culture (Keep swabs for *T. vaginalis* culture at room temperature)	Candidiasis, trichomoniasis

(continued)

Table 7.1 (continued)

	Possible diagnosis
(b) Second vaginal swab	
Roll gently onto microscope slide	
AIR dry	
Ask laboratory to Gram stain	Bacterial vaginosis; desquamative vaginitis (see Chap. 6 – Sect. 6.3)
Before discarding, drop 1–5 % KOH onto swab and sniff	
→ pronounced "fish-like" odor = positive "amine" test	Bacterial vaginosis
If sexually transmitted infection a possibility or clinical suspicion of cervicitis → refer to GU medicine clinic	
If patient unwilling or impractical to attend:	
Cervical or vaginal swab for NAAT:	Gonorrhea and chlamydia
4. *Management summary*	
Diagnosis	*Treatment*
Candidiasis	A topical imidazole (pessaries and cream), oral triazole e.g. fluconazole 150 mg stat, itraconazole 200 mg bd for 1 day

Table 7.1 (continued)

	Possible diagnosis
Bacterial vaginosis	Oral metronidazole, e.g. 2 g suspension stat; 400 mg bd for 5 days
	Intravaginal 0.75 % metronidazole gel daily for 5 days
	Intravaginal 2 % clindamycin cream for 7 days
	Oral clindamycin 300 mg bd for 7 days
Trichomoniasis	Oral metronidazole, e.g. 2 g suspension stat or 400 mg bd for 5–7 days
	Sexual partners should be assessed and treated
Chlamydia	Tetracycline (e.g. doxycycline 100 mg bd for 7–10 days); Azithromycin 1 g stat or 500 mg stat followed by 250 mg for 4–6 days; Ofloxacin 200 mg bd or 400 mg once a day for 7 days
	Strongly consider referral to GU medicine for follow-up and contact tracing
Gonorrhoea	Ceftriaxone 500 mg intra-muscular stat plus Azithromycin 1 g po stat. Patients found to have gonorrhoea should ideally be referred to GU medicine for follow-up and contact tracing

bd twice daily, *tds* three times daily, *GU* genitourinary, *stat* once only

Chapter 8
Vulval Problems

Vulval disease is common and although most of the conditions presenting in general practice are straightforward, a significant number of women pose rather more of a diagnostic and management problem.
The following are the important points to consider:

1. What are the predominant symptoms: irritation, soreness or burning?
   Is there an urge to scratch or is the skin too sore?
   Is the whole vulva affected or are symptoms localized to one particular area?
2. Is there a personal or family history of allergy?
3. Any history of skin problems, for example dermatitis/eczema, psoriasis, lichen planus?
4. Any history of mouth soreness to suggest lichen planus?
5. Which soap is used for cleansing the genital area? Are bubblebath, hygiene sprays, etc. used?
6. Are symptoms related to the time in the menstrual cycle or brought on by coitus?

Although candidiasis is the commonest cause of vulval irritation, this diagnosis should be reconsidered if vaginal swabs fail to grow the fungus and there is no response to antifungal treatment. If there is doubt, consider using a

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longer course of an oral antifungal (e.g. itraconazole or fluconazole) as a diagnostic test. If there is no clinical response to antifungals in spite of *Candida* being isolated on culture, ask the laboratory to identify the *Candida* spp., as some of the more unusual strains (e.g. *Candida glabrata*) may be resistant to the commonly used imidazole and triazole preparations (see Chap. 5).

Although the vulva may be affected by a variety of skin conditions, the clinical features are often modified by secondary infection, scratching (causing lichenification – skin thickening), or by previous treatments. Examination of the scalp, nails, elbows, and mouth may provide useful clues to the diagnosis.

Vulval Irritation

Conditions that may present with vulval irritation include the following:

1. Candidiasis (see above, Chap. 5 and Figs. 5.1, 5.2, and 5.3).
2. Human papillomavirus (HPV) infection (see also Chap. 17). Genital warts can cause slight irritation and when they first appear may be quite difficult to identify without some form of magnification, such as a colposcope. (Note: Anal warts may present as pruritis ani; beware the diagnosis of hemorrhoids without careful examination!) Vulval intraepithelial neoplasia (VIN, Fig. 8.1) is strongly associated with HPV type 16 infection and often presents as white or off-white, flat or papular lesions, most commonly affecting the labia minora and perineum. Lesions are multifocal in 70 % of women and cause irritation in just under two-thirds. Biopsy should be considered to confirm the diagnosis and stage the lesion (VIN I, VIN II, or VIN III). VIN III has the potential to progress to squamous cell carcinoma, particularly in the more mature woman, and therefore careful follow-up is advisable. In addition, as VIN is associated with dysplasia elsewhere in the genital tract, it is important to ensure that cervical cytology is performed on a regular

FIGURE 8.1 Vulval intraepithelial neoplasia (VIN)

basis, ideally annually. Examination of the anus for AIN should be performed at the same time.

3. Genital herpes (see also Chap. 16). Some women report vulval irritation before ulcers appear. With primary genital herpes, the irritation is soon superseded by increasing soreness and subsequently ulceration and vulval edema. The typical blisters are fragile and often missed. A history of a "flu-like" illness or sore throat prior to the onset of the vulval symptoms is often a helpful diagnostic clue. Women presenting with primary genital herpes often give a history of supposed "thrush" that has worsened whilst using antifungals.

   In recurrent herpes, the vulval lesions may be tiny and easily overlooked unless the patient or examining clinician is alert to the possible diagnosis. Examination with a magnifying glass or colposcope can be helpful in these cases.
4. Trichomoniasis. *Trichomonas vaginalis* usually causes a vulvo-vaginitis associated with an increased vaginal discharge. Diagnosis is by wet-mount microscopy or culture (see Fig. 6.1).
5. Streptococcal infection. Although both Lancefield Group A and Group B streptococci may cause a vulvovaginitis, this is uncommon and vulval infection usually occurs secondarily to an already damaged vulval skin, for example from dermatitis. Vulval erysipelas is usually associated with

Group A streptococci and presents as pronounced labial swelling and erythema which may progress to necrosis.

6. Dermatoses. These are not uncommon and often involve the labia majora and perineum.
   (a) Seborrheic dermatitis (Fig. 8.2). Look for evidence elsewhere, such as on the face, chest, and scalp.
   (b) Contact dermatitis. There is often a history of allergies or family history of atopy. Check whether any creams or lotions are being applied to the genital area. Latex allergy usually presents as vaginal soreness after using condoms. Seminal fluid, KY jelly, or spermicide allergy present as postcoital vaginal discomfort sometimes associated with vulval edema. Hygiene sprays, antimicrobial creams, and anesthetic hemorrhoid creams are potential sensitizers. Scented soaps and bubble-baths are more likely to irritate an already inflamed skin rather than cause a dermatitis.

FIGURE 8.2 Seborrhoeic dermatitis

(c) Lichen simplex (Fig. 8.3). Some degree of skin thickening or lichenification is common after chronic scratching. Treatment with a moderately potent topical steroid is often required.
(d) Lichen planus (Fig. 8.4). Look for evidence elsewhere, particularly in the mouth. Erosive lichen planus is a variant that may present with severe vulvitis and vaginitis.
(e) Psoriasis (Fig. 8.5). Look for evidence elsewhere, including nail pitting, and ask about family history. Lesions in the genital area may not appear typical as the scale is often lost leaving a red, glazed epithelium.
(f) Lichen sclerosus (Fig. 8.6). Commonly affects the perianal and genital regions in children and adults. Often presents with irritation and less commonly soreness. Sexual intercourse can be painful either because of friction damaging the fragile vulval skin or secondary to tightening of the vaginal introitus

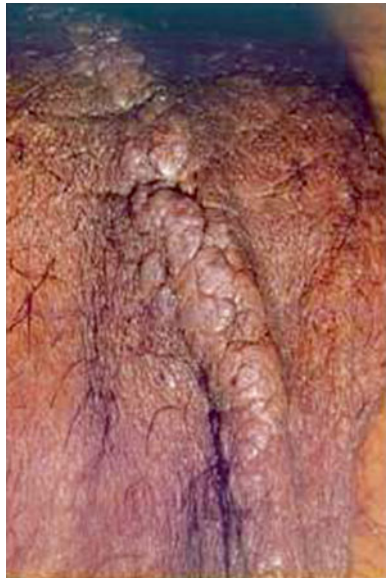

Figure 8.3 Lichen simplex

FIGURE 8.4 Lichen planus

FIGURE 8.5 Psoriasis

resulting from post-inflammatory scarring. In the early stages the skin appears white and slightly thinned sometimes with small, superficial erosions and "blood blisters." Untreated, the inflammatory process may lead to resorption of the labia minora and clitoris and narrowing of the introitus (Fig. 8.7).

FIGURE 8.6 Lichen sclerosus – atrophic changes

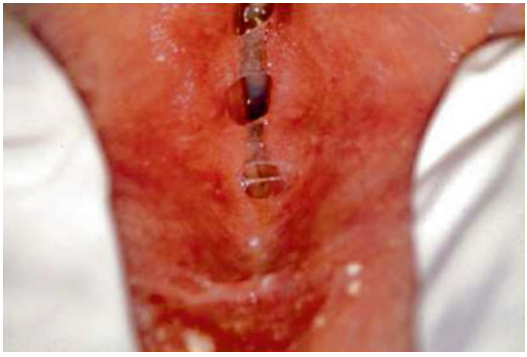

FIGURE 8.7 Lichen sclerosus – showing adhesion formation between the labia

Active disease should be treated initially with a potent topical steroid (e.g. clobetasol propionate) for 6–8 weeks. Long-term follow-up is recommended because of the small risk (up to 4 %) of developing squamous cell carcinoma.

A Short Note About Topical Steroids

Patients are often concerned that topical steroids will damage the skin, particularly in the genital region, and may therefore fail to treat themselves adequately. It is worth reassuring patients that steroid creams and ointments are safe to use under clinical supervision and are required, sometimes in high strength and for long periods of time, to adequately treat skin problems. Not too much cream need be applied and suggesting to the patient that a tube should last a year or two may help to avoid over treatment. Creams sometimes sting a little more on application than ointments but may be easier to apply to mucosal surfaces. Combined steroid and antiinfective preparations may be required to treat genital dermatoses but be alert to hypersensitivity reactions to the topical antibiotic components (e.g. neomycin, tetracycline). Some conditions (e.g. lichen sclerosus) should be initially treated with a potent topical steroid and then a weaker preparation substituted after a few weeks when symptoms have improved.

Vulval Soreness or Tenderness

All of the above conditions may cause soreness in addition to or rather than irritation.

Localised Provoked Vestibulodynia (Formerly Known as Vulvar Vestibulitis)

This is an important, frequently misdiagnosed or missed condition that causes pain on sexual intercourse (dyspareunia), particularly penetration. Tampons may also be too uncomfortable to use. It would be reasonable to say that all women presenting with insertional dyspareunia should be considered to have vestibulodynia until proven otherwise. The condition presents as small areas of localized tenderness at the introitus,

often associated with erythema (Fig. 8.8), classically over the vestibular gland openings at the 5 o'clock and 7 o'clock positions. Some form of magnification, such as a colposcope, will often be required to see the lesions adequately. The cause of vestibulodynia is currently unknown. Some women experience pain from coitarche whilst others give a history of years of pain-free sexual intercourse. A variety of treatments have been used to treat this condition with an often variable or poor response. These include topical steroids, topical estrogens and intralesional triamcinolone. Modified vestibulectomy has produced good results in some studies but patients need to be selected with care. Some women show marked introital sensitivity, with light touch with a cotton wool swab invoking marked tenderness (allodynia). Low dose amitriptyline (10 mg initially slowly increasing to 50 or 75 mg, if tolerated), gabapentin or pregabalin can prove helpful in these cases, either as single agents or low dose combinations.

Posterior Fourchette Tear

Posterior fourchette tears cause pain during sexual intercourse, sometimes associated with bleeding. Examination with a colposcope may be required to make the diagnosis as

FIGURE 8.8 Vestibulodynia – area of erythema at introital 7 o'clock position

the tears are often very small. Although a mild strength combined steroid/antibacterial cream may prove helpful, some women are prone to recurrences. Tearing is sometimes associated with a bridge of skin at this site, in which case surgical removal or reconstruction (e.g. modified Fenton's procedure or 'Z-plasty') should be considered (Fig. 8.9).

Vulval Burning

"Unprovoked vulvodynia" is the term used to describe symptoms of vulval burning with a normal appearing epithelium. The condition was previously known as "essential vulvodynia" or "dysesthetic vulvodynia". Pudendal neuralgia is an important cause with some patients demonstrating diminished sensation in the sacral sensory distribution. Symptoms are also often relieved by standing and worsened by sitting, as this stretches the pudendal nerve as it passes through the pelvis. Benign sacral meningeal cysts have been reported to cause genital pain and burning in both men and women, the diagnosis being made by magnetic resonance imaging of the lumbosacral spine. I would however suggest a neurological referral or alternative specialist opinion before requesting MRI scans on your patients with genital pain.

FIGURE 8.9 Posterior fourchette tear

In the majority of patients, however, no obvious physical cause can be found for their symptoms in which case psychological issues should be considered and addressed.

Management may include the use of 'pain modifiers', such as low to medium dose amitriptyline, prothiaden or fluoxetine, pregabalin, gabapentin, hypnosis, acupuncture, transcutaneous electrical nerve simulation (TENS) or caudal injection. As for vestibulodynia, amitriptyline, gabapentin or pregabalin are useful first line options, either as single agents or low dose combinations.

Other Vulval Conditions

Vulval Edema

The lax vulval skin is prone to edema and is particularly associated with infections such as herpes, candidiasis, and syphilis, although the latter is uncommon in women in the UK nowadays. Edema is an occasional feature of contact dermatitis and has been reported following intercourse in women with semen allergy. Vulval edema may also be a presenting sign of Crohn's disease and intra-pelvic pathology.

Angiokeratomata

These small lesions usually appear on the labia majora as tiny, often multiple, bright red vascular spots (Fig. 8.10). They may increase in number and size with age and are harmless.

Melanocytic Naevi

These may appear anywhere on the vulva or perineum and have the same characteristics as naevi elsewhere on the body.

See also Chaps. 17 and 18.

Important Management Points for Vulval Disease

- Vulval moistness may increase the risk of secondary infection with yeasts or bacteria. Advise patients to dry the skin thoroughly after washing, if possible with a hair dryer on cool setting. Avoid tight clothing and try to ventilate the area as much as sociably possible.
- Even with careful attention, secondary infection of genital dermatoses may occur. Treatment with a combined anti-infective and steroidal preparation should be considered.
- Although creams are often easier to apply to the genital epithelium, they may sting a little more than ointments.
- Soap, bubble-bath, shower gel, and feminine washes should be avoided as they may irritate inflamed skin. Many women find emollients such as aqueous cream or emulsifying ointment useful as soap substitutes for cleansing. Applying cold cream from the refrigerator can be particularly soothing.
- Vulval biopsy may be required to accurately diagnose skin dermatoses. The application of lignocaine/prilocaine cream prior to injecting local anesthetic makes this a painless and generally well-tolerated procedure.

FIGURE 8.10 Angiokeratomata

- All painful vulval conditions have the potential to cause a secondary vaginismus that can often persist after the original complaint has settled. This will require appropriate treatment and follow-up. (see also Chap. 21)
- Vulval disease is often chronic and inevitably affects relationships and leads to a degree of psychological morbidity. Psychological support is therefore an important part of the management of these patients and should be considered along with treatment aimed at the physical component of the condition.
- The diagnosis and management of vulval disease can be difficult and may, in some cases, require the assistance of a clinician with a specific interest in the vulva. Many hospitals now run "vulval multidisciplinary team clinics" where specialists in dermatology, GU medicine and gynecology offer a combined opinion and may refer onto physiotherapy, psychosexual therapy, psychology or pain management as necessary. This is the ideal approach to managing vulval disease and I would urge early referral if there is diagnostic or management uncertainty.

Chapter 9
Frequency–Dysuria Syndrome

Frequency and dysuria in the female are usually due to the following:

- Cystitis
- Urethritis/urethral syndrome
- Vulvitis.

Women with vulvitis will often complain of more generalized vulval irritation or soreness in addition to dysuria. The urinary symptoms are due to urine touching an inflamed labial epithelium or due to peri-urethral inflammation.

It is impossible to distinguish between cystitis and urethritis/urethral syndrome by symptoms alone. As a useful rule of thumb, if urine dipstix testing is entirely normal and the midstream urine culture is negative or shows sterile pyuria, consider urethritis/urethral syndrome.

Cystitis

In cystitis, the MSU should contain $>10^5$ uropathogens per ml. This criterion was originally established for diagnosing acute pyelonephritis and several studies have since suggested that a lower bacterial count of between 10^3 and 10^5 per ml indicates bladder infection, particularly when Gram-positive

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bacteria (e.g. *Staphylococcus saprophyticus*) or atypical organisms (e.g. *Proteus*) are involved. Studies have reported that between one-third to one-half of women with bacterial cystitis have "low-count" bacteruria. The commonest causes of cystitis are *E. coli*, *S. saprophyticus*, *Proteus mirabilis*, *Klebsiella pneumoniae*, and *Enterobacter* spp.

Urethritis/Urethral Syndrome

Women with frequency and dysuria and urine containing $<10^3$ uropathogens per ml with or without pyuria are usually diagnosed as having "urethral syndrome." Some will have a true urethritis that may be diagnosed by finding polymorphs on a Gram-stained urethral smear, an investigation often performed in GU medicine.

Chlamydia trachomatis is the most important organism to consider. A urine nucleic acid amplification test (NAAT) may be adequate to diagnose female urethral chlamydial infection although this has not been established. A combined cervical/high vaginal and urethral swab would probably be the optimal sample.

Although some studies have suggested that fastidious bacteria colonizing the vulval vestibule, such as lactobacilli and diphtheroids, may occasionally infect the urethra and produce frequency and dysuria, this continues to be a topic of debate.

Other causes of urethral syndrome include the following:

- Gonorrhoea (very unusual to present with frequency and/or dysuria as the only symptoms)
- *Mycoplasma genitalium* (this is a recently recognised cause of genital infection and is currently not routinely tested for in most laboratories)
- Herpes (usually associated with vulval or periurethral ulceration)
- Trichomoniasis (usually associated with an increased vaginal discharge)
- HPV infection (a small intrameatal/distal urethral genital wart).

Investigation of Frequency – Dysuria

Dipstix testing and looking at the urine are useful first-line tests. Cystitis is highly unlikely if the urine looks clear and dipstix testing is negative for nitrites, leucocytes, blood, and protein.

As a general rule, consider sending an MSU for microscopy and culture if dipstix testing is positive for nitrites, leucocytes, blood, and protein, although bear in mind that contamination with vaginal discharge may yield positive dipstix results for leucocytes, protein, or blood. Women with recurrent symptoms should ideally have tests repeated at the onset of each symptomatic episode.

If these tests prove negative, consider the following:

- Checking for chlamydial infection, as described above.
- Taking a vaginal swab for *Trichomonas vaginalis* and *Candida* culture
- Referring to GU medicine for examination of the urethral meatus, distal urethra, and periurethral area for evidence of tiny genital warts, small herpetic ulcers, or a localized area of vulvitis. Examination should be performed when symptoms are present.

Recurrent Frequency – Dysuria

- Women with recurrent episodes of proven cystitis should be referred to urology for investigation of urinary tract pathology.
- Interstitial cystitis and irritable bladder syndrome also present with symptoms suggestive of recurrent bacterial cystitis and require urological assessment for diagnosis. Some women with irritable bladder syndrome also experience pain with sexual intercourse due to vestibulodynia and may also give a history of irritable bowel syndrome.
- Recurrent postcoital cystitis ('honeymoon cystitis') may be prevented by urinating directly after intercourse or by

using prophylactic single dose antibiotics pre- or post-coitus. Some women with a "low-set," almost intravaginal, urethral meatus are particularly prone to postcoital cystitis.

- Advise wiping from "front-to-back" after defecation.
- Cranberry juice has long been thought to have a protective effect against recurrent urinary tract infection in women at risk of developing such infections. Although there is evidence to show that cranberry juice interferes with bacterial adherence in vitro and eliminates uropathogenic bacteria from the gut, recent review of a large number of studies has questioned previous support for this approach to prevention.
- Urethral dilatation or urethrotomy will benefit some women with recurrent bacterial cystitis
- The use of intravaginal estrogen may help to prevent recurrent urinary tract infections in postmenopausal women.
- Consider a 7 day course of Azithromycin (500 mg on day 1 then 250 mg daily for 6 days). This is effective against chlamydial infection and is better than a tetracycline for treating *Mycoplasma genitalium* infection.

A number of women suffer chronic urinary symptoms for which no obvious cause can be found. Underlying psychological issues should be carefully sought and discussed openly with the patient. Suggesting that symptoms are "in the mind" is usually unhelpful whereas an approach that recognizes the symptoms as real and attempts to help the patient to "defocus" the mind from the urinary tract by way of hypnosis, behaviour therapy or meditation may prove helpful. A low-moderate dose tricyclic antidepressant (e.g. amitriptyline), as used for chronic pain relief, is also worth considering if pain is a major symptom.

Chapter 10
Pelvic Pain

Women with acute, severe pelvic pain are most appropriately assessed by a gynecologist. Chronic or recurrent pelvic pain can be notoriously difficult to diagnose and manage and although many women will eventually require a gynecological assessment, GU medicine can play an important role in assessing patients for evidence of genital infection. Referral to GU medicine may therefore be an appropriate first step for women with pelvic discomfort or pain and if no evidence of infection is found gynecological referral should then be considered.

Pelvic inflammatory disease (PID) is difficult to diagnose without the aid of laparoscopy and many women are unfortunately labeled as having PID on insufficient clinical grounds. This can lead to a great deal of anxiety, particularly regarding infertility. It is impractical to offer laparoscopy to all women with pelvic pain and if PID is considered a possible diagnosis then the uncertainty of the diagnosis should be discussed with the patient, the appropriate genital swabs taken, appropriate antibiotics prescribed, male sexual partners assessed for urethritis and chlamydial infection, and the patient reassessed after treatment.

Chlamydia trachomatis is the commonest cause of PID in the UK and although many women will present with increased vaginal discharge and pelvic discomfort/pain, there is good

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evidence to suggest that *Chlamydia* can produce subclinical pelvic infection. As with classical PID, subclinical infection may cause tubal damage and subsequent infertility.

Gonorrhoea is less common in the U.K. than chlamydial infection but the diagnosis must be considered in all women with presumed pelvic infection. *Mycoplasma genitalium* is also recognised as a sexually transmitted pathogen, capable of causing urethritis, cervicitis and pelvic inflammatory disease.

Diagnosis and Management of Pelvic Inflammatory Disease

1. The following swabs should be taken:
   (a) Vaginal and cervical swabs for Gram staining and microscopy, although this is rarely performed in settings other than GU medicine clinics in the UK. Most PID results from an ascending lower genital tract infection, so there is often evidence of an abnormal vaginal microflora, such as bacterial vaginosis, or of a cervicitis. Mucopurulent cervical secretions provide clinical evidence of cervicitis, however this is not always easy to assess unless there is excellent lighting and an experienced eye (see also Chap. 6 – section "Cervicitis"). Confirmation can be made by examining a Gram-stained smear of cervical secretions by microscopy: the presence of >30–40 polymorphs per high power field (HPF – ×1000 magnification) is highly suggestive of cervicitis. A normal lactobacilli-predominant vaginal flora and the absence of cervicitis make PID a less likely diagnosis.
   (b) Cervical swab for a nucleic acid amplification test (NAAT) for *Chlamydia trachomatis* and *Neisseria gonorrhoeae* detection. Remember that organisms may be present in the uterus and fallopian tubes in spite of negative cervical cultures. Most NHS laboratories do not currently test for *Mycoplasma genitalium* infection.

2. A raised ESR and peripheral white blood cell count are often present in acute PID but are non-specific and therefore provide little clinical guidance.
3. Remember that the most important differential diagnoses for acute PID are acute appendicitis and ectopic pregnancy. Other conditions which may mimic PID include endometriosis, ovarian cyst torsion or rupture, urinary tract infection, mesenteric lymphadenitis, and ovarian tumor. The more common differential diagnoses of chronic pelvic pain include endometriosis, irritable bowel syndrome, and pelvic congestion.
4. Treatment of PID should include antibiotics active against *Chlamydia*, anaerobes, and the gonococcus.
   Current UK guidelines recommend:

   ceftriaxone 500 mg im stat + doxycycline 100 mg bd + metronidazole 400 mg bd
   or
   ceftriaxone 500 mg im stat + ofloxacin 400 mg bd + metronidazole 400 mg bd

   The oral agents should be continued for 14 days.

   An alternative regimen is ceftriaxone 500 mg i.m. immediately followed by azithromycin 1 g weekly for 2 weeks.

   Metronidazole is included to cover anaerobic infection, however this is probably more important in women with more severe PID. Those with milder symptoms may discontinue the metronidazole if tolerance is poor.

   There is currently no evidence to suggest that treatment with non-steroidal anti-inflammatory drugs reduces the risk of tubal scarring.
5. Advise bed rest and analgesia as required.
6. It is imperative that sexual partners are assessed for evidence of urethritis and treated, otherwise recurrence is likely. Further attacks of PID increase the chances of infertility: following three episodes of PID there is a more than 50 % chance of infertility. Urethritis is frequently asymptomatic in male contacts of women with PID, a point worth stressing to the patient.

7. A number of women suffer chronic pelvic pain for which no obvious cause can be found. Underlying psychological issues should be carefully sought and discussed openly with the patient. An approach that recognizes the symptoms as real rather than predominantly psychological and that attempts to help the patient "de-focus" by way of hypnosis or meditation may prove helpful. A low-dose tricyclic antidepressant (e.g. amitriptyline), as used for chronic pain relief, should be considered before referral to a pain management specialist.

Chapter 11
Cytology and Colposcopy

Cervical cancer is in most cases a preventable disease and cervical cytology is an effective method of screening for abnormalities that have the potential to progress to cancer. The National Health Service Cervical Screening Programme provides guidelines on all aspects of cervical screening. The following recommendations apply to England, Northern Ireland and Wales:

- First cervical cytology invite at 24.5 years of age
- Three yearly cervical cytology tests between ages 25 and 49
- Five yearly cervical cytology tests between ages 50 and 64
- Cytology recommended above the age of 65 if a recent abnormal cytology test or no screening performed since the age of 50.

In Scotland, women aged 20–60 are currently invited for screening every 3 years, however this will change in 2016 to follow the same screening schedule as England, Northern Ireland and Wales.

The age of cervical screening in the UK was raised from 21 to 25 years for a number of reasons:

- the incidence of cervical cancer in the under 25 age group is low. In 2007, 56 cases of cervical cancer were registered

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among women aged 15–24 in England and Wales and a total of three deaths.
- the prevalence of transient human papillomavirus (HPV) infection is high in young sexually active women and may cause abnormal cytology. Approximately one in six cervical cytology samples taken in this age group are abnormal.
- many of these low grade abnormalities resolve spontaneously

Screening in this young age group leads to unnecessary referral to colposcopy with the possibility of increased anxiety and overtreatment.

Women under 25 years of age who are concerned about cervical cancer, particularly if they have symptoms such as post-coital bleeding, should be assessed by their GP or a Genitourinary Medicine/Sexual Health practitioner.

Repeating cytology every 2 years is 50 % more expensive than screening every 3 years. A study from the United States has shown that in a well screened population, three yearly screening would prevent virtually all cervical cancers prevented by annual screening with an additional 70,000 smears and 400 colposcopic examinations being needed to prevent one extra cancer.

Extending the screening period after the age of 50 is based on data showing that the prevalence of cervical intraepithelial neoplasia (CIN) III and cervical cancer is very low beyond this age in a well-screened population.

Cervical sampling using liquid based cytology (LBC) is now the standard method for assessing cervical cytology in many countries. A Cervex® brush is used to obtain the cervical sample and, instead of smearing on to a microscope slide, the brush is vigorously 'stirred' into a buffer solution to produce a suspension of cells. This is then used to produce a monolayer of cells, without the usual blood cells and other debris. These cleaner samples can be read more quickly and should increase the sensitivity for detecting pathological changes and reduce the number of inadequate samples.

However, some commentators have questioned the claims that LBC performs better than conventional cytology.

The National Health Service Cervical Screening Programme (NHSCSP) introduced HPV testing for triaging women with low grade cervical abnormalities (i.e. borderline and mild dyskaryosis) in 2012. Colposcopy is recommended if 'high risk' HPV is detected whereas women with a negative HPV result return to 3 year recall. HPV testing is used as a primary screening method in some countries and is currently being piloted in the UK.

Taking a Sample for Cervical Cytology

Most of us will have passed through undergraduate training without proper instruction on how to take a cervical sample and occasionally the basic principles are forgotten, even by the most experienced clinician. There are a few important points to consider:

1. To obtain a "good" cervical sample the cervix must be well visualized. This is an obvious point but not always followed. The following guidelines may help to make the procedure a little easier for both patient and practitioner.
   (a) Try to relax the patient and ensure she is fully informed of what the procedure entails.
   (b) Warm the speculum if metal although plastic disposable speculae are more commonly used.
   (c) Use an appropriately sized speculum. A 25 year old nulliparous woman usually requires a smaller speculum than a 40-year-old woman with five children. A very long speculum (Winterton) and even a VI (virgin) long is occasionally required; it is well worthwhile keeping one or two in the surgery.
   (d) Insert the speculum gently and open slowly looking for the cervix as you proceed. Inserting the speculum completely before opening sometimes leads to the cervix being passed and provides only a view of the

anterior or posterior fornix. "Gently" is the key; a heavy hand leads to discomfort and may deter the patient from attending for gynecological examinations in the future.

(e) Good lighting is essential.

(f) A lithotomy (gynaecology) couch is ideal for patient comfort and enables easier visualisation of the cervix. Although relatively expensive they should be considered as the best option for cervical sample takers. These couches can be converted to standard examination couches for other patient examinations.

Cervical dysplasia and neoplasia usually originate in the "transformation zone" adjacent to the "squamo-columnar junction" (see Fig. 11.1). It is therefore important that this area is adequately sampled with the Cervex® brush. An endocervical brush is often required in addition to the Cervex® brush for women who have had previous treatment for cervical glandular intraepithelial neoplasia (CGIN). This is to ensure adequate endocervical cell sampling. Cervical cytology on this group of women without endocervical cells present will be classed as inadequate. Mention on the cytology form (paper or electronic) if you

FIGURE 11.1 Cervical ectopy demonstrating well the squamo-columnar junction

have used an endocervical brush because it often picks up glandular components that can give the cytologist the false impression of cervical or endometrial pathology.

The entire squamo-columnar junction (SCJ) must be sampled, which in women with a large ectropion may require sweeping the Cervex® brush beyond the SCJ. This will ensure adequate sampling of squamous cells. The Cervex® brush must be rotated five times, clockwise, remembering that the aim is to sample the entire squamo-columnar junction.

Cervical samples are best performed at mid-cycle but the opportunity should not be missed to take a sample at other times, except during menstruation.

2. A large number of women think that the main objective of cervical cytology is to detect cervical cancer and there are probably an appreciable number who are deterred from having cervical cytology tests because of this. The misconception is reinforced by using the term "cancer smear" and by telling women with negative samples that there was "no evidence of cancer/malignancy." When a subsequent test shows "slight abnormalities" very reasonably the thought of cancer will come to mind and generate a great deal of unnecessary anxiety. Our health education message needs to emphasise the purpose of cervical screening, which is to detect precancerous changes in the cells of the cervix which may, in a small number of cases, progress to cancer over many years. Greater emphasis should be made of the likelihood of minor abnormalities returning to normal and of the fact that if these minor changes persist or progress then treatment can be initiated and so prevent the development of cancer at a later date. Unfortunately, because there is currently no way of determining which changes will return to normal and which will progress, a number of women undergo unnecessary treatment. Continued surveillance of minor cervical pathology by cytology and colposcopy does cause anxiety and many women therefore prefer to opt for treatment. The use of HPV triage and 'test of cure' has made a significant difference to the number of women requiring continued surveillance.

Cervical Cytology Report: Terminology Briefly Explained

Cervical cytology terminology is rather complicated and can be very difficult to explain in simple lay terms. It is well worthwhile spending a little time discussing the possible results, including implications of HPV testing, and their significance with the patient at the time of taking the sample and providing information leaflets to take away. This may help to reduce anxiety should the test need repeating at an earlier time interval or should there be a need to refer on for colposcopy.

Inadequate Specimen

There are a number of reasons why cervical cytology is considered inadequate for assessment and some of these may be rectified before the sample is taken or sent to the laboratory.

1. *Scanty specimen*. Adequate sampling may be difficult in women with a tiny cervical os and gentle dilatation prior to sample taking can be helpful.
2. *Blood stained specimen*: *too many red blood cells for adequate assessment*. Some cervices bleed profusely as the sample is taken. This may indicate cervicitis or too firm a pressure when sampling. Consider checking for cervical infection, in particular *Chlamydia*, with a cervical NAAT test.
3. *Excessive bacteria*. This is usually due to bacterial vaginosis, a condition caused by an overgrowth of various bacteria, in particular *Gardnerella vaginalis*, *Mycoplasma hominis*, *Bacteroides* spp., and other anaerobes (see Chap. 4). Bacterial vaginosis usually requires treatment only if there are symptoms of vaginal discharge; however, when the condition interferes with cervical cytology consider treating before resampling.

4. *Excess pus cells/polymorphs*. This may result from cervicitis or vaginitis. If you think clinically there is a vaginitis, take a swab for *Trichomonas vaginalis* and *Candida* culture and treat with an antifungal. If there is clinical evidence of cervicitis, and this may be very difficult to assess, check for cervical pathogens such as *Chlamydia* and *N. gonorrhoeae*. Ideally, patients with presumed cervicitis should be referred to GU medicine for assessment.

   Candida may be seen on a cervical sample but it usually interferes with assessment only if there are excessive numbers of pus cells or candidal pseudohyphae and spores. Treatment is necessary only if symptoms are present or if cytology cannot be adequately assessed.

   Trichomonas vaginalis may also be seen on a cervical sample; however, it is always worth confirming with vaginal culture or NAAT as false positive results may occur with cytology.

5. *No endocervical component present*. There is continuing debate as to whether an adequate cytology specimen needs to contain endocervical and/or metaplastic cells. In fact, the only samples that can be judged with certainty as adequate are those containing abnormal cells. The presence of endocervical/metaplastic cells suggests that the squamocolumnar junction has been sampled, either partly or fully.

   In the UK, women should be referred for colposcopy after three consecutive inadequate samples in order to exclude invasive cancer, as inadequate results may be associated with lesions that are not shedding cells.

Inflammatory Cytology Samples

This is less commonly referred to nowadays; however, some cytology laboratories use this term to mean excessive pus cells suggesting inflammation and possible infection. More commonly, however, it refers to nuclear abnormalities insufficient to be termed dyskaryosis. If there is clinical evidence

of cervicitis or the patient has noticed an increased discharge, either check for infection (*Chlamydia* and gonorrhoea) in the surgery or preferably refer to GU medicine. If the cervix looks normal, repeat the sample in 3–6 months time. The inflammatory changes often resolve without antibiotic treatment. If inflammatory changes persist, check for infection as mentioned above and consider prescribing a course of tetracycline or azithromycin.

Human Papillomavirus Infection (see also Chap. 17)

Human papillomavirus is the commonest sexually transmitted viral infection. Although HPV causes genital warts, most HPV infection is "subclinical." Studies using extremely sensitive methods for detecting viral DNA (nucleic acid amplification test, such as polymerase chain reaction) have identified low levels of HPV in many sexually active women. This may either clear with time or persist indefinitely. Subclinical HPV infection can sometimes be diagnosed on cervical cytology by identifying cells called "koilocytes." The cells have a prominent nucleus and the cytoplasm contains a large perinuclear halo. These appearances are considered pathognomonic of HPV infection.

Certain HPV types, in particular types 16 and 18, are strongly associated with high grade cervical dysplasia (cervical intraepithelial neoplasia (CIN) II/III) and cancer. In the UK, testing for 'high risk' HPV is performed on cervical samples showing borderline or mild dyskaryotic changes. The presence or absence of HPV determines whether there should be immediate referral for colposcopy or routine recall (see below).

Dyskaryosis

This means that the cell nucleus is abnormal. There are three grades of dyskaryosis: mild, moderate, and severe. The equiv-

alent histological terms are mild, moderate, and severe dysplasia or more commonly named CIN I, II, and III. The concept of dyskaryosis is very difficult to explain in lay terms. The term "pre-cancer," although theoretically correct, is a little too dramatic and often causes anxiety. An "abnormality of the cells which is not cancerous but which may in a small number of women progress to cancer over many years" is rather wordy but fairly accurate and with emphasis on "not," "may," "small," and "many" tends to avoid leaving the patient with a feeling of pending doom. It can of course be difficult to achieve the right balance between causing undue anxiety and producing excessive complacency. Tailoring the wording to the individual patient is essential.

Women with cytology samples showing moderate or severe dyskaryosis should be referred immediately for colposcopy.

In the United States, cervical cytology showing evidence of HPV infection, borderline changes or mild dyskaryosis are grouped as *low grade squamous epithelial lesions* (LGSIL). Moderate and severe dyskaryosis are grouped into *high grade squamous epithelial lesions* (HGSIL). The term *atypical squamous cells of uncertain significance* (ASCUS) is used for cells considered abnormal but neither clearly reactive nor dysplastic. The above classification, known as the "Bethesda system," has generated some controversy, in particular with respect to the merging of HPV infection with mild dyskaryosis.

Borderline Nuclear Changes and Low Grade Dyskaryosis

Borderline changes suggest nuclear abnormalities that are insufficient to be termed dyskaryosis. Borderline nuclear changes may be found in the presence of HPV infection and in association with inflammatory changes, such as cervicitis. In the UK, all cytology samples showing borderline changes or low grade dyskaryosis are checked for 'high risk' HPV types. Colposcopy is recommended if 'high risk' HPV is

detected whereas women with a negative result return to routine recall.

Colposcopy

A number of studies have reported high levels of anxiety among women attending colposcopy clinics. Providing accurate information and carefully explaining how colposcopy is performed and what is likely to happen undoubtedly helps to reduce the anxiety. In the UK, women will be referred for colposcopy if mild cytological abnormalities together with 'high risk' HPV are found on cytology or if there is a single cytology result showing high grade dyskaryosis (i.e. moderate or severe). The following points should be covered at the time of referral.

1. Explain that the colposcope is purely a magnifying system that enables the cervix to be examined in greater detail. It is worth emphasizing that the colposcope does not enter the vagina and the procedure is rather like having a cervical 'smear'. A weak vinegar solution (usually 5 % acetic acid) is used to help show up abnormal areas (CIN and evidence of HPV infection) on the cervix and this does very occasionally sting a little. Women with a colposcopically normal cervix are reassured and discharged back to the GP for repeat cervical cytology in 3 or 5 years. Women aged 60 and over may be discharged from the screening programme.
2. Colposcopy can be performed in pregnancy and should be encouraged so that abnormalities can be assessed and malignancy excluded. Biopsy and/or treatment are not performed in pregnancy unless there is suspicion of cancer.
3. If an abnormality is seen at colposcopy, a biopsy may be taken, usually without local anesthesia. Very occasionally some women feel a short sharp pain as the biopsy is taken while others find this only mildly uncomfortable or pain free, likening the sensation to a firm pinch. A few colposcopists inject a small amount of local anesthetic prior to biopsy. This is only slightly uncomfortable but does ensure

that the rest of the procedure is virtually painless. The biopsy site is usually cauterised using a paste (ferric subsulphate or Monsel's) or with silver nitrate. This often causes a somewhat messy discharge for a few days but does help to reduce the possibility of heavy bleeding.

4. If the colposcopist sees only low grade changes, the patient may be managed conservatively without biopsy. Repeat cervical cytology is recommended in 12 months.
5. After a biopsy has been taken some women experience period-like pains that may persist for several hours. This is usually relieved by paracetamol or ibuprofen.
6. There may be spotting of blood for a couple of days after taking a biopsy. Sexual intercourse should be avoided until the spotting has stopped.
7. The patient is usually informed of the biopsy result in writing and may be asked to return for treatment if necessary. Some colposcopists prefer to "see and treat" on the first clinic attendance if high grade changes are seen. This usually involves performing a Large Loop Excision of the Transformation Zone (LLETZ).
8. Most colposcopy clinics provide local information leaflets for patients, which are sent out with the appointment, and NHS Cervical Screening programme leaflets are sent to women with their cytology test result.

In the UK, colposcopy is recommended for the following groups:

- Three consecutive inadequate cytology samples
- One cervical cytology sample showing borderline nuclear changes in squamous cells or low grade dyskaryosis together with the detection of 'high risk' HPV
- One cervical cytology sample showing borderline nuclear changes in endocervical (glandular) cells.
  - Three cervical cytology samples repeated abnormal at any grade over a 10 year period
  - One cervical cytology sample showing high grade dyskaryosis (moderate or severe)

  - One cervical cytology sample showing severe dyskaryosis/?invasive
- One cervical cytology sample showing? glandular neoplasia

Treatment of Cervical Intraepithelial Neoplasia

Although this will vary from unit to unit, LLETZ is the usual method used for treating CIN. This is usually performed under local anaesthesia (rather than general anaesthetic) and has been shown to be a safe and effective procedure with no subsequent effect on menstruation or fertility. There are however studies showing that treatment to the cervix may put a woman at higher risk of low birth weight or early delivery in future pregnancies. Cervical cytology is recommended at 6 months following treatment. Repeat colposcopy is recommended if the sample is negative or showing borderline or mild dyskaryosis and is 'high risk' HPV positive.

Chapter 12
Dysuria in Young Men

The commonest cause of dysuria in the young, single, sexually active male is urethritis rather than cystitis and the commonest cause of urethritis is *Chlamydia trachomatis*.

Symptoms associated with urethritis include 'urethral irritation', dysuria, urethral discharge, which may not be noticed by the patient, and frequency (Fig. 12.1).

The following are the causes of urethritis:

- *Chlamydia trachomatis* (up to approximately 40 %).
- *Mycoplasma genitalium* (up to 25 %)
- *Ureaplasma biovar type 2* (*previously known as ueaplasma urealyticum*) (Possibly 10–20 %). There is still some debate concerning the role of ureaplasmas in urethritis.

The following make up only a small percentage of cases, hence most non-specific urethritis (NSU) is truly non-specific, with no specific organism being identified.

- *Trichomonas vaginalis*
- Herpes simplex virus
- *E. coli* (usually causes cystitis although it has been documented as a cause of urethritis in homosexual men)
- Adenovirus (acquired by oral sex from a partner with adenovirus pharyngeal infection) – usually presents with severe dysuria, as may herpes urethritis

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FIGURE 12.1 Mucoid urethral discharge due to chlamydia

- *Neisseria meningitidis* and Candida species are very uncommon causes
- Traumatic (e.g. post-catheterization, after pencil or biro insertion) and post-urethral stricture
- Reactive (e.g. post-dysenteric reactive arthritis may be associated with a urethritis). This is not sexually acquired.

Investigations

To diagnose urethritis the following investigations should be performed:

1. *Urethral swab Gram stain*: A small foam swab or plastic loop is inserted into the opened meatus and the distal urethra gently swabbed. Secretions are then transferred on to a microscope slide for Gram staining and microscopy.

   The presence of >4 polymorphs per high power field (HPF = ×1000 magnification) is diagnostic of urethritis.
2. *Two-glass urine test*: The patient is asked to pass the first 20–50 ml of his urinary stream into a glass and the second part of the stream into a second glass (any remaining in the bladder can be directed into the urinal). The presence of "threads" or "specks" of pus in the first glass with a clear second glass indicates an anterior urethritis. Pus in both

glasses suggests a posterior urethritis or cystitis. If this is the case, send the first glass or an MSU to the laboratory for culture. Patients with a profuse discharge due to NSU or gonorrhea may show pus in both glasses; however, this will be much heavier in the first glass.

Phosphaturia is a common cause of cloudy urine and may be mistaken for pyuria. The addition of acetic acid will rapidly clear the urine if phosphates are present; if the urine remains cloudy then pyuria is the likely cause.

A rather more scientific method of diagnosing urethritis from the first catch urine is to Gram stain and perform microscopy on a centrifuged urinary sediment. The presence of ≥10 polymorphs in any of five random fields (×1000) indicates a urethritis. Some studies have suggested that examination of the urine may be a more sensitive method of detecting mild urethritis than the urethral Gram stain.

Urine dipstix testing for white blood cells (leucocyte esterase test) is not particularly sensitive for diagnosing urethritis but it does have a good negative predictive value.

Cases of mild urethritis may be missed if the patient has recently passed urine before the above investigations are performed. For this reason, patients should be asked to hold on to their urine for at least 3 h prior to assessment. If the history is suggestive of urethritis and the initial investigations prove negative, repeat testing should be performed early in the morning, the patient having held on to his urine overnight.

3. Whenever possible, a urethral swab or urine sample should also be taken for detection of *Chlamydia*, as chlamydial infection may be present in the absence of an obvious urethritis. The test of choice is a nucleic acid amplification test (NAAT). Finding *Chlamydia*, however, does not alter patient management. Azithromycin or tetracycline are first-line treatments for both *Chlamydia*-positive and *Chlamydia*-negative NSU.
4. Gonococcal urethritis is far less common than NSU, but a urethral swab should be taken for *N. gonorrhoeae* culture.

Although the urine/urethral NAAT detects both chlamydial and gonococcal infection, culture for *Neisseria gonorrheae* is required to provide antibiotic sensitivities. Remember that the gonococcus is particularly delicate and may well not survive an overnight delay before plating on to specific culture media. If there is likely to be a delay, place the swab in the refrigerator rather than keeping at room temperature. However, if gonorrhea is considered a possible diagnosis, the patient should ideally be referred to GU medicine so that swabs may be plated on to the appropriate culture media and incubated prior to transport to the laboratory. The important issue of contact tracing can also be addressed.

5. Most NHS laboratories are currently unable to routinely test for *Mycoplasma genitalium* infection.
6. Send an MSU or first-catch urine for microscopy and culture if the two-glass urine test suggests posterior urethritis/cystitis or urine dipstix testing shows the presence of nitrites or blood.

Management of Non-Specific Urethritis

Most GP surgeries do not have access to immediate microscopy and there may be a delay in transporting microbiology specimens to the laboratory; therefore, patients with suspected urethritis should be referred to GU medicine for assessment. Urethritis is considered an urgent problem requiring immediate attention. A telephone call to the clinic before sending along the patient is appreciated, however, as most clinics run an appointment system.

First-line treatment for NSU should be with either a tetracycline (e.g. doxycycline 100 mg bd for 7 days) or azithromycin 1 g stat.

Some clinicians are moving to prescribing a longer course of Azithromycin (e.g. 1 g or 500 mg stat followed by 250 mg daily for 4–6 days) as this is effective against chlamydial infection and treats *Mycoplasma genitalium* infection more effectively than a single dosage.

Ofloxacin 200 mg bd or 400 mg once daily for 7 days is an alternative second-line treatment option.

Sexual partners must be assessed and an antibiotic prescribed, namely a tetracycline or azithromycin, even in the absence of infection. The possibility of missing a chlamydial infection with the subsequent development of asymptomatic pelvic infection leading to infertility or ectopic pregnancy warrants such a policy.

Patients should be reassessed following treatment to ensure cure although some practitioners recommend review only if symptoms persist. The initial lack of response to treatment may result from poor compliance, reinfection, or persistent infection. If persistence is considered likely, retreat with a longer course of azithromycin, as detailed above, or a 3 week course of erythromycin 500 mg qds. These should be taken with metronidazole 400 mg bd for 5 days. Reinforce the need to avoid sexual intercourse until partners have been assessed and treated and advise against frequent self-examination, masturbation, spicy foods, and excessive alcohol that may aggravate symptoms.

Moxifloxacin 400 mg daily for 10–14 days has been used successfully in patients with persisting urethritis, probably because of a higher efficacy against *Mycoplasma genitalium*. In view of the potential liver toxicity associated with moxifloxacin, some practioners reserve this treatment for patients considered at risk of having *M. genitalium* which is resistant to macrolides. Patients with continued symptoms together with objective evidence of urethritis may warrant urethroscopy, urethral ultrasound, or a urethrogram, particularly if there are symptoms of abnormal urinary flow.

Recurrent Urethritis

A small number of men suffer repeated episodes of NSU. Some of these will be caused by reinfection from new or previously untreated partners; however, recurrence of

urethritis without sexual contact or within a relationship where the sexual partner has received treatment is well recognized. The emerging evidence that *M. genitalium* may persist following treatment with single-dose azithromycin suggests that re-treatment of the patient and his partner with an extended course of azithromycin should be considered in cases where urethritis recurs after treatment.

Most clinicians would re-treat the symptomatic male although previous courses of tetracycline, azithromycin and metronidazole significantly reduce the likelihood of ongoing infection.

Some cases of recurrent urethritis are thought to be due to "immunological hypersensitivity" to a previous infection that results in a persisting inflammatory response.

Management of Gonorrhea

Patients with gonorrhea should be referred to a GU medicine clinic for treatment, follow-up, and contact tracing (Fig. 12.2). If there is a delay before the patient can be seen, consider treating with ceftriaxone 500 mg i.m. together with azithromycin 1 g po stat and then refer to the GU medicine clinic for follow-up and contact tracing.

FIGURE 12.2 Mucopurulent urethral discharge due to gonorrhoea

Penicillin and ciprofloxacin resistant gonorrhea is now seen in the UK, hence the move to using a high dose cephalosporin. Laboratories should provide details of antibiotic sensitivities for their gonococcal isolates.

Patients should reattend for "tests of cure" after treatment and to follow up issues regarding partner notification.

Management of Urinary Tract Infection

As mentioned above, dysuria in the young, sexually active male is more likely to be due to urethritis than to cystitis or urinary tract infection. If a UTI is considered the most likely diagnosis, consider treating with antibiotics which achieve therapeutic concentrations in the prostate (e.g. trimethoprim, norfloxacin, ciprofloxacin).

Men with acute pyelonephritis or who suffer more than one episode of cystitis warrant urological investigation.

Important Points

1. Consider a diagnosis of urethritis rather than cystitis in the "unmarried," sexually active man with dysuria. Urethritis should also be considered in the married or cohabiting man but proceed with a little more caution!
2. Initial investigations should include a urethral Gram stain and two-glass urine test. If both glasses of the two-glass urine test contain pus, send off the first glass or an MSU for microscopy and culture and treat as cystitis.
3. As microscopy is generally unavailable in the GP surgery, the patient should be referred to a GU medicine clinic for urgent assessment. Contact tracing can then also be addressed and the opportunity taken to provide health education and information about the condition.
4. Remember that "contact tracing" or "partner notification" involves rather more than providing antibiotics for the sexual partner. Partners should be clinically assessed and

the possibility of other sexual partners being involved must be addressed.

5. Consider the diagnosis of urethritis in men and women with dysuria and an MSU showing sterile pyuria.
6. NSU is sexually acquired in the majority of cases. Sexual partners must be assessed and treated.
7. Although this chapter has focused on men presenting with dysuria, remember that both gonococcal and, in particular, NSU may be asymptomatic. Such individuals may pass on their infection unknowingly to sexual partners and act as important transmitters of disease within the community.

Chapter 13
Prostatitis, Chronic Pelvic Pain Syndrome, and Hematospermia

Men with "prostatitis" usually find their way to either urology or GU medicine. Although common, the condition has often proved difficult to define, diagnose and manage. A classification system developed by the National Institutes of Health (NIH) has helped to clarify diagnostic criteria and it is now accepted that only a minority of men with prostatitis have bacterial infection (type 1 and type 2).
The classification is as follows:

Acute bacterial (Type I) prostatitis accounts for <1 % of cases and commonly presents with fever, chills, frequency, dysuria or strangury, and rectal pain. Examination reveals a tender, swollen prostate gland.

Chronic bacterial (Type II) prostatitis (CBP) may be more difficult to diagnose clinically. Symptoms may include perineal or suprapubic discomfort or pain sometimes radiating to the testes and penis. This may be associated with dysuria, frequency, and postejaculatory pain. CBP may also present as recurrent urinary tract infection. Rectal examination may reveal some tenderness and a softening or nodularity. True CBP is thought to account for approximately 5 % of cases of symptomatic prostatitis. *Escherichia coli* is the commonest cause of bacterial prostatitis *(*50–80 % of cases). Other causative organisms include Enterobacteriaceae (e.g., *Klebsiella* and *Proteus), Enterococcus* species, non-fermenting gram-negative bacilli

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(e.g., *Pseudomonas* species), *Staphylococcus* and *Streptococcus* species.

Chronic pelvic pain syndrome (CPPS) (Type III) is subdivided into inflammatory (Type IIIa – formerly known as "chronic abacterial prostatitis") in which leucocytes are present in the semen or in urine post-prostatic massage, and non-inflammatory (Type IIIb) (formerly known as "prostatodynia"). Type IIIa and IIIb are equally prevalent and may even be the same condition. Men with CPPS are usually young to middle-aged and present with perineal or genital pain lasting for several weeks or months. Pain is central to the diagnosis and is usually variable in intensity and typically widely distributed in the genital, perineal, and pelvic areas. There may be associated urinary symptoms such as frequency, variable urine flow, and urgency and sexual disturbance in the form of ejaculatory discomfort.

Asymptomatic inflammatory prostatitis (category IV), presents with similar symptoms and is defined by an abnormal semen analysis, elevated prostate-specific antigen (PSA), or evidence of inflammatory changes on prostatic biopsy.

Other causes of "prostatitis-like" symptoms are as follows:

- Bladder neck dyssynergia (muscular incoordination) may present with frequency, urgency, and postmicturition dribbling. Diagnosis is usually by urinary flow studies.
- Pelvic floor tension myalgia presents with frequency, urgency, and perineal discomfort and there is pain on palpating the levator ani.
- Pudendal neuralgia may present with perineal and genital pain.
- Benign sacral meningeal cysts have been reported as a cause of genital pain and are best visualized by magnetic resonance imaging (MRI) scanning of the lumbosacral spine. However, it is probably prudent to consider seeking a neurological or urological opinion before embarking on costly investigations.

Investigations

Diagnosing chronic prostatitis can be difficult in general practice. "Localization studies" are no longer felt to be necessary as a similar percentage of normal controls have been found to have positive cultures of expressed prostatic secretions as CPPS patients.

Mid-stream urine culture should be performed as this may be positive in some patients with type II prostatitis.

Transrectal ultrasound should be necessary only if a prostatic abscess is suspected or as part of a research study.

The National Institutes of Health (NIH) – Chronic Prostatitis Symptom Index is a validated questionnaire that scores disorders relating to pain, voiding, and quality of life. The maximum total score is 43, and a decrease of 4–6 points (or 25 %) following treatment correlates with clinically significant improvement.

Treatment

An urgent urological opinion should be sought for patients with presumed acute prostatitis. The condition is usually caused by the common urinary pathogens and is best treated with trimethoprim or a 4-quinolone such as ciprofloxacin or ofloxacin. Intravenous therapy is usually required initially and treatment should continue with oral antibiotics for up to 6 weeks.

Chronic bacterial prostatitis requires an antibiotic that can pass readily into the prostate. A 6–8-week course of ciprofloxacin (500 mg bd) or ofloxacin 400 mg daily should be considered. Trimethoprim is less effective in this condition.

Patients with CPPS often prove difficult to manage. The following have been reported as potentially useful.

- A recent meta-analysis of studies suggests that antimicrobial therapy may be beneficial. Ofloxacin or ciprofloxacin, for 4–6 weeks, are reasonable choices. Doxycycline (100 mg

bd) has the possible advantage of an anti-inflammatory as well as an antibacterial action and may be tried if quinolones are ineffective. This approach may be particularly useful in patients with recent onset of symptoms.
- Non-steroidal anti-inflammatory drugs (NSAIDs) are sometimes given at the same time as antibiotics, either orally or, possibly preferably, as suppositories, but the evidence of benefit is limited.
- Some patients with CPPS have a spastic dysfunction of the bladder neck and prostatic urethra and may benefit from an alpha-blocker (e.g., tamsulosin, alfuzosin, terazosin). Treatment for 6–12 weeks is recommended and appears to be helpful in patients with a shorter duration of symptoms and who have not previously received an alpha-blocker.
- Low to medium dose amitriptyline (e.g., 25–75 mg), gabapentin and pregabalin, as used for chronic pain control, may prove helpful and antidepressants (e.g., fluoxetine) if a co-existent depressive element is suspected.
- Pelvic floor physiotherapy should be considered early in the management pathway.

Other approaches to management include:

- Finasteride (5 mg daily) – worth trying if there is evidence of co-existent prostatic enlargement.
- The bioflavanoid, quercetin (500 mg bd for 1 month) may prove helpful if pain is the predominant feature rather than urinary symptoms.
- Pollen extract (cernilton) is reported to have anti-inflammatory and anti-adrenergic properties and has been used successfully in some cases of CPPS. Treatment may need to be continued for some months.
- Transurethral microwave thermotherapy to the prostate has also been used with variable success.

Psychological factors should be tactfully sought and addressed and the use of acupuncture, hypnosis or relaxation, visualization techniques and cognitive behavioural therapy considered. Most importantly, time should be taken to

explain that the condition is not precancerous, will not affect fertility, and cannot be passed on or acquired through sexual intercourse. The natural history of CPPS is often fluctuating and symptoms may resolve over time.

On a final note, referral to a chronic pain clinic should be considered in patients with persisting symptoms.

Hematospermia

Blood in the ejaculate is a worrying condition that often raises concerns about cancer or sexually transmitted infection. It is important to distinguish a blood stained ejaculate from fresh bleeding per urethra (e.g., secondary to intrameatal or distal urethral warts) and traumatic lesions (e.g., a torn frenulum). A careful genital and prostatic examination are therefore required and the appropriate tests taken to check for urethritis, including chlamydial and gonococcal infection, although in the majority of cases these prove negative. The blood pressure should be measured and urinalysis performed to exclude hematuria.

Men under 40 years of age with negative findings and no other urinary or genital symptoms require reassurance. The condition may recur but will eventually cease. Men over 40 years of age are at greater risk of having underlying pathology and should undergo further investigation, including prostate specific antigen (PSA) testing after appropriate counseling.

Chapter 14
Intra-Scrotal Pain

The scrotum and its contents have a complicated nerve supply.

1. Sympathetic fibers from T1–L1 supply the testis, vas, and epididymis.
2. Somatic fibers from L1–L2 supply the outer surface of the testis, the tunica vaginalis, and the anterior scrotal skin.
3. Somatic fibers from S2–S3 supply the rest of the scrotal skin.

Scrotal pain may therefore be caused by intrascrotal pathology or result from referred pain from visceral or somatic structures.

Causes of referred pain include the following:

1. Impacted stone in the lower ureter (splanchnic L1)
2. Small inguinal hernia compressing the genitofemoral nerve
3. Degenerative lesions of the lower thoracic and upper lumbar spine
4. Tendonitis at the insertion of the inguinal ligament into the pubis
5. Disease of the genital viscera (e.g., prostate, seminal vesicles)
6. Benign sacral meningeal cysts (see also vulvodynia p. 60)
7. Aneurysm of the internal iliac artery.

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Intrascrotal Pathology

Epididymitis

The commonest cause of acute intra-scrotal pain in the adult is acute epididymitis. In sexually active men under the age of about 35 years, this is usually caused by *C. trachomatis.* The patient presents with "pain in the scrotum," but there is often an associated urethritis, which may be asymptomatic. In men over the age of 35 years, the commonest causes of epididymitis are the more standard urinary tract pathogens such as *E. coli*, *Pseudomonas* spp., *Klebsiella* spp., and *Proteus* spp.

Investigations

The sexual history may give a clue as to whether the condition is more likely to be sexually or non-sexually transmitted.

In the 'younger', sexually active single male, the initial investigations should include the following (see also Chap. 13-page 74):

- urethral swab for Gram stain (to look for evidence of urethritis)
- urethral swab or urine nucleic acid amplification test (NAAT) for detection of *Chlamydia trachomatis* and *Neisseria gonorrhoeae.* (Testing for *Mycoplasma genitalium* is currently not routinely available in many laboratories, although this is likely to change in the near future).
- Urine dipstix testing and culture. The presence of leucocytes, protein, nitrites or blood suggests cystitis. In cases of urethritis, the dipstix may or may not show the presence of leucocytes only.

In the "older" age groups, culture of an MSU may be sufficient, although please remember that the 'older' man is also at risk of acquiring a sexually transmitted infection.

Management

The "young" sexually active male with epididymitis should ideally be referred to a GU medicine clinic for urgent investigation. If evidence of urethritis is found or a sexually transmitted cause considered likely then treat with an antibiotic active against *Chlamydia trachomatis*, such as a tetracycline (e.g., doxycycline 100 mg bd). The patient should be reviewed in 1 week or sooner if symptoms worsen. If there is clinical improvement, the treatment should be continued for at least 6 weeks. Azithromycin could be used in place of Doxycycline, however this has not been assessed by clinical trial and hence has a limited evidence base. Sexual contacts must be assessed, in particular for evidence of chlamydial infection. (See also Chap. 13)

If a urinary tract pathogen is considered a more likely cause, treatment with, for example, trimethoprim, norfloxacin, or ofloxacin should be started while awaiting the results of MSU culture and sensitivity tests.

Many patients find a scrotal support helpful in addition to simple analgesia.

If there is any doubt about the diagnosis, an urgent urological opinion should be requested to exclude torsion of the testis.

Testicular (Spermatic Cord) Torsion

Just under 50 % of men with testicular torsion give a history of previous brief episodes of scrotal discomfort. The pain is usually of sudden onset and severe and may be associated with nausea or vomiting. Torsion of the testicular appendage (cyst of Morgagni) presents in an identical fashion. Torsion is more common in young men (late teens) and should be considered in this age group if tests for urethritis and upper urinary tract infection prove negative. All patients with a suspected torsion should be referred urgently for a urological opinion with the view to emergency exploration of the scrotum.

Orchitis

This may affect one or both testes and in the UK it is most commonly associated with mumps. Testicular atrophy develops in approximately 15 % of adults following severe mumps orchitis. More unusual causes of orchitis include infectious mononucleosis, coxsackie B virus infection……and dengue fever.

Tumor

Approximately 15 % of testicular tumors present as a painful swelling, due to haemorrhage, and may be initially misdiagnosed as epididymitis. More commonly, however, tumors are painless or may be detected as a firmness or asymmetry of the testis, sometimes associated with aching or discomfort. Ultrasound scanning helps distinguish between masses in the body of the testis and other intrascrotal swellings and should also be considered in patients with a diagnosis of epididymo-orchitis that fails to resolve within a couple of weeks.

Peri-orchitis

This presents as a tender nodule on the surface of the testis and results from inflammation in the tunica vaginalis. Symptoms usually improve with time without the need for surgery.

Cremasteric Spasm

This presents as pain or discomfort, particularly during intercourse, and is associated with the testis being drawn up to the external inguinal ring. This may be relieved by circumcision of the cremaster which divides the genitofemoral nerve.

Epididymal Cysts

These are common and usually painless. Pain or discomfort may result from bleeding within a cyst. Referral is not required for asymptomatic cysts.

After Vasectomy

Intra-scrotal discomfort after vasectomy may be caused by obstruction and distension of the epididymal duct. This is usually relieved by using a scrotal support and treatment with NSAIDs.

A sperm granuloma presents as a small, tender swelling at the site of vasectomy and may appear months or years after the procedure. If the pain fails to settle with a scrotal support and NSAIDs, a surgical excision or epididymectomy may be required.

Varicocele

Varicoceles may cause aching within the scrotum which becomes worse toward the end of the day. Thrombosis within a varicocele has been reported as a cause of scrotal pain.

Idiopathic

No abnormality is found in many men who present with intra-scrotal pain or orchalgia. In some cases examination may reveal a rather sensitive epididymis. This is thought to result from "seminal congestion" and is best treated by reassurance although some practitioners advocate other means to relieve the congestion.

Important Management Points

1. Consider referral to GU medicine if you think there is evidence of epididymitis.
2. Refer urgently to urology if there is a possibility of torsion. All cases of acute testicular pain are due to torsion until proved otherwise.
3. Scrotal ultrasound is a useful non-invasive procedure that may help to determine the nature of intra-scrotal pathology. It may also help to reassure both patient and doctor that no serious pathology is present. Remember that testicular torsion may appear normal on ultrasound scanning.

Chapter 15
Penile Rashes

Inflammation of the glans penis (balanitis) and of the prepuce (posthitis) usually occur together.

Irritant Balanoposthitis

This is very common and often the result of poor hygiene. An accumulation of smegma may be visible (Fig. 15.1). Advise gentle bathing twice daily with plain or slightly salty water followed by application of a barrier cream (e.g. aqueous cream).

Candidiasis

Usually presents as a diffuse erythema with numerous scattered small, red, slightly "eroded" spots (Fig. 15.2), although an erosive almost herpes-like balanitis has been reported.

Bacterial Infection

Anaerobic bacteria and group B streptococci occasionally cause a balanoposthitis (Fig. 15.3). Streptococcal infection may present with marked preputial and penile shaft oedema.

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FIGURE 15.1 Irritant posthitis – smegma present

FIGURE 15.2 Penile candidiasis

Dermatitis

Seborrheic dermatitis and contact dermatitis may present on the penis. Ask about other skin problems (e.g. affecting the scalp or face) and whether there is a history of allergy. Treat initially with hydrocortisone or hydrocortisone/antifungal cream. If there is secondary infection, consider using a combined steroidal/antibacterial/antifungal preparation.

Figure 15.3 Streptococcal balanoposthitis

Less Common Causes of Balanoposthitis

Circinate Balanitis

Associated with reactive arthritis or, more frequently, with the incomplete syndrome (i.e., reactive arthritis with or without urethritis or conjunctivitis) (Fig. 15.4).

Lichen Planus

Usually presents with well-demarcated red-purplish lesions and may be confused with flat warts or psoriasis (Fig. 15.5). There may also be evidence of lichen planus at other sites, such as the wrists or mouth.

Psoriasis

Genital lesions frequently lose the classical silvery scale and present as well demarcated erythematous plaques (Fig. 15.6).

FIGURE 15.4 Circinate balanitis

FIGURE 15.5 Lichen planus

FIGURE 15.6 Psoriasis

Lichen Sclerosus

Areas of erythema with whitened, atrophic patches are the typical features (Fig. 15.7). Adhesions may occur between the glans penis and the prepuce and long-standing cases may progress to phimosis. Perimeatal disease leads to narrowing of the urethral meatus (Fig. 15.8). Treat initially with a potent topical steroid (e.g. clobetasol propionate) and then slowly "wean down" according to clinical response. Daily application for 4–6 weeks and then 2–3 times weekly for a further 2 months is a reasonable approach with review at 3 months. As some patients are hesitant to apply steroids to their genitalia, it is important to explain the importance of this treatment and provide reassurance that long-term application is safe under clinical supervision. Preputial tightening secondary to lichen sclerosus can be dramatically improved with topical steroids and may obviate the need for circumcision. Long-term follow-up is recommended because of the small risk of developing squamous cell carcinoma.

Human Papillomavirus Infection

A patchy balanoposthitis may predate the appearance of classical condylomata acuminata (genital warts).

Penile intraepithelial neoplasia (frequently caused by HPV type 16) may present as mildly erythematous papules (Fig. 15.9). These are accentuated by the application of an acetic acid solution (so called 'aceto-whitening').

Fixed Drug Eruptions

Although many drugs have the potential to cause a fixed drug eruption, it is more commonly seen with tetracyclines, trimethoprim, sulphonamides, non-steroidal anti-inflammatories, paracetamol, and salicylates. Lesions may first appear as a patch of erythema or a small blister and can rapidly

FIGURE 15.7 Lichen sclerosus – note early adhesions between the prepuce and glans

FIGURE 15.8 Lichen sclerosus – atrophic changes and narrowing of the meatus

progress to produce large areas of ulceration, often initially misdiagnosed as genital herpes (Fig. 15.10). Secondary infection can occur and treatment should include gentle bathing with salty water and, in some cases, a mild anti-inflammatory plus antibacterial cream. Oral prednisolone is very occasionally required for the more severe and extensive cases.

FIGURE 15.9 Penile intraepithelial neoplasia (PIN)

FIGURE 15.10 Fixed drug eruption

Zoon's Balanitis (Plasma Cell Balanitis)

An uncommon condition seen mostly in middle-aged and elderly men. The lesions present as flat, moist, red, shiny plaques affecting the glans and mucosa of the prepuce (Fig. 15.11). There may be associated irritation. Although circumcision is a recommended treatment, some cases do respond to the application of a topical moderate-strength steroid cream, particularly a preparation containing an

FIGURE 15.11 Zoon's balanitis

antibacterial agent, together with aeration, as much as socially possible.

Erythroplasia of Queyrat

An uncommon condition now falling under the diagnostic category of "penile intraepithelial neoplasia" (PIN). Erythroplasia is seen almost exclusively in uncircumcised men and lesions appear as well-demarcated shiny, red, velvety plaques. Malignant change is well documented.

Other Penile and Scrotal Rashes

Kaposi's Sarcoma

Kaposi's sarcoma is seen mostly in patients with HIV infection in the UK and is caused by human herpes virus type 8. Lesions are initially flat and dusky red and may appear on the glans penis or shaft. (See also Fig. 19.2)

Angiokeratomata

These small lesions usually affect the scrotum rather than the penis and appear as tiny, often multiple, bright red vascular spots. They may increase in number and size with age and are harmless. They are very common and usually do not require treatment.

Melanocytic Naevi

These may appear on the penis or scrotum and have the same characteristics as naevi elsewhere on the body.

General Advice for Patients with Balanoposthitis

Aeration is helpful for most causes of balanitis but can sometimes be difficult to achieve. Keeping the foreskin retracted for an hour or so each evening and allowing a good circulation of air, perhaps under a dressing gown or nightshirt for social acceptability, is worth trying. A combined topical steroid and antibacterial cream, if indicated, can then be applied and the foreskin pulled back over the glans. A small amount of cream is sufficient and patients should be advised accordingly.

Gentle bathing with salty water is often soothing, particularly for moist lesions. The area can then be dried with a hair dryer on cool setting.

Chapter 16
Genital Ulceration

Genital Herpes

Herpes simplex virus (HSV) infection is by far the commonest cause of genital ulceration seen in general practice. Although HSV type 2 has traditionally been considered the commonest cause of genital herpes, studies have reported HSV type 1 infection in over 60 % of cases, the virus being passed on by oro-genital contact. Serological studies examining HSV-2 seroprevalence in various population groups have shown that up to 70 % of infections are asymptomatic.

Clinical Features

Primary attack (i.e., No Previous Exposure to HSV-1 or HSV-2)

Primary herpes is a miserable condition. Following an incubation period of 3–5 days (range 1–40 days), small blisters appear on the genitalia, often associated with a "flu-like" illness. The blisters soon break down to leave small tender ulcers that may eventually merge to produce quite extensive areas of painful ulceration (Figs. 16.1 and 16.2). Lesions start

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FIGURE 16.1 Primary genital herpes affecting the penis

FIGURE 16.2 Primary genital herpes affecting the vulva

to heal after about 12 days. Herpes may cause a urethritis which presents as dysuria, often severe in nature.

Ninety percent of women have a cervicitis producing an excessive "vaginal" discharge. Other clinical features include painful inguinal lymphadenopathy, headache and photophobia (aseptic meningitis), urinary retention (sacral radiculopathy), pharyngitis, and extragenital lesions (on fingers, lips, buttocks).

First Attack: Non-primary

This is the first clinical episode of herpes in a patient who has had previous exposure to the virus (type 1 or type 2). Symptoms are usually much less severe than primary herpes owing to partial immunity.

Recurrent Herpes

Approximately 90 % of patients with type 2 genital herpes will suffer a recurrence within 1 year of their primary attack. This is in contrast to patients with HSV type 1 infection, in whom there is a 55 % chance of recurrence. The frequency of recurrences also differs between the two viral types – on average 3–4 attacks per year with HSV-2 infection compared with twice a year with HSV-1. Viral reactivation leading to symptomatic or asymptomatic viral shedding may be greatest during the first few months after a primary attack and should be discussed with patients diagnosed with primary infection. Symptoms of recurrent genital herpes are often mild. About 50 % of patients will develop prodromal symptoms such as genital "pins and needles," shooting pains in the buttocks and legs, or inguinal discomfort associated with lymphadenopathy. Symptoms of sacral neuralgia are the most troublesome part of the recurrence for some patients. The cervix is affected in only 10 % of women with recurrent disease.

When lesions appear they tend to be few in number and heal within 1 week. A small number of patients, however, suffer more frequent and long-lasting attacks that can be

FIGURE 16.3 Recurrent herpes of the penis

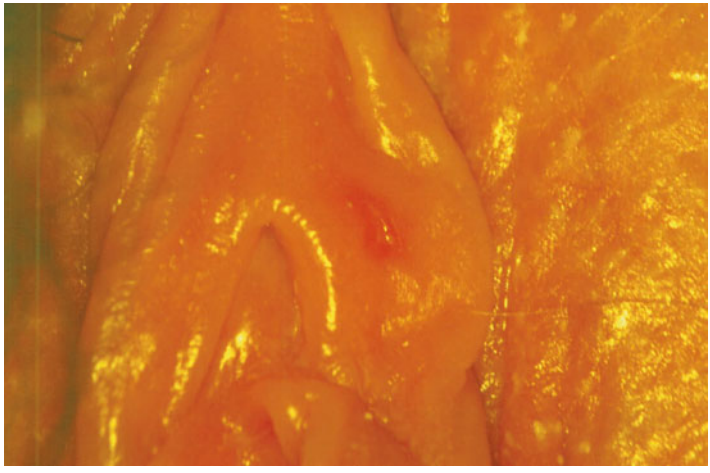

FIGURE 16.4 Recurrent herpes of the vulva

particularly distressing (Figs. 16.3 and 16.4). Recent studies have suggested that symptoms of recurrent disease may be minimal and often ignored by the patient. This is an important issue that should be addressed when the diagnosis of

herpes is first made. Taking note of minor genital symptoms and avoiding sexual contact at such times is important if the risk of transmission to partners is to be reduced. It is always wise to confirm the clinical diagnosis of herpes by viral culture or nucleic acid amplification (NAAT) testing. If initial swabs are negative patients should be asked to re-attend immediately genital symptoms recur so that further swabs can be taken.

Diagnosis of Genital Herpes

Culture

Most laboratories are now able to perform herpes typing. This is of some prognostic significance regarding recurrence rate (see above) and can be helpful information when counselling patients.

The chances of obtaining a positive culture will depend very much on the stage of the lesion: ulcers shed more virus than crusting lesions. This needs to be explained to the patient who may not fully appreciate why they were diagnosed as having herpes at their initial consultation and then told a week or two later that their "herpes test" was negative. Most laboratories now perform nucleic acid amplification (NAAT) testing, such as polymerase chain reaction (PCR), for diagnosing herpes infection. This is considered a much more sensitive method of diagnosis compared to viral culture.

Serology

Serological assays that distinguish between HSV type 1 and type 2 antibodies are now available but should be used selectively. Herpes serology is of no diagnostic value for primary herpes. Serology has a possible useful role in patients attending with recurrent genital ulceration and negative

herpes NAAT. A negative result almost rules out herpes as a cause for the ulceration, although false negative results do occur, whereas a positive result for HSV type 2 antibody makes the diagnosis of genital herpes very likely.

Serology may also be helpful in couples where one partner has documented genital herpes and the other gives no history of infection. Positive HSV type 2 serology in the partner with no clinical history of herpes indicates previous infection and a degree of immunity, assuming that the infected partner has type 2 infection. This obviously reduces the anxiety associated with the possibility of herpes transmission during sexual intercourse.

However, the converse must also be considered; a negative result may increase anxiety owing to concerns regarding the possibility of infecting the negative partner. Discussion with both partners is required and time given to consider the consequences of the possible results. Pregnant women with no history of genital herpes but with an infected partner may wish to avoid intercourse during the pregnancy if she proves HSV antibody negative (see section on "Pregnancy").

Management

Primary Genital Herpes

Women tend to fare rather worse than men. The genital sores are often exquisitely tender, urination may be intolerable, and patients usually feel generally very unwell with myalgia, headaches, fever, etc. The following are the recommended:

- Take a swab for herpes virus culture or NAAT.
- Advise taking aspirin or paracetamol (or stronger preparation) as required.
- Bathe the genital area twice daily with warm salty water and dry with the hair dryer on cool setting.
- Some women find it easier to pass urine while sitting in a warm bath.

- Prescribe aciclovir 200 mg five times a day or 400 mg three times a day for 5 days, famciclovir 250 mg tds for 5 days, or valaciclovir 500 mg bd for 5 days.
- There is no place for topical aciclovir cream in treating primary herpes

Urinary retention secondary to sacral radiculopathy is uncommon and affects women and homosexual men more commonly than heterosexual men.

Approximately 10 % of women suffer coincidental vaginal candidiasis. If there is generalized vulval erythema in addition to areas of ulceration or if symptoms persist after the ulcers have healed, consider treating for Candida with an oral agent such as fluconazole 150 mg stat dose or itraconazole 200 mg bd for 1 day. Most women are rather too sore to use pessaries or cream.

The diagnosis of herpes can be psychologically traumatic and a great deal of time is often required to provide adequate information about the disease. Some patients require further more intensive "counselling" to help them come to terms with the condition. Key issues which need to be addressed include the possibility of asymptomatic viral shedding, the effect this may have on current or future sexual relationships, and the use of condoms to provide some protection to sexual partners. It is worth emphasising that many people acquire genital herpes from an asymptomatic partner who is unknowingly shedding virus. The issue of herpes in pregnancy is discussed below.

Recurrent Herpes

Most patients cope extremely well with herpes and do not require treatment. Attacks are usually infrequent and last only a few days and can be managed quite adequately by bathing the affected area with salty water and avoiding sexual contact while lesions are present.

A small number of patients suffer rather more painful and prolonged attacks and may benefit from a course of

famciclovir (125 mg bd for 5 days), aciclovir tablets (200 mg five times a day or 400 mg tds for 3–5 days), valaciclovir 500 mg bd for 5 days or aciclovir cream (which must be used five times a day) taken or applied immediately when lesions appear. There has been some debate regarding the treatment of recurrent herpes with intermittent short courses of antiviral agents and concern raised about the possibility of generating resistant viral strains; however, this would appear to be more of an issue with immunosuppressed patients on long term suppressive treatment.

For the small minority of patients who are plagued by very frequent and prolonged recurrences, it may be worth considering prophylactic therapy. This entails taking tablets on a daily basis for up to 1 year initially after which time the medication is stopped and the frequency of recurrences reassessed. Current regimens include acyclovir 400 mg bd (a frequently used treatment), aciclovir 200 mg four times a day, famciclovir 250 mg bd, and valaciclovir 500 mg daily. Patients are usually reviewed at 3-monthly intervals. Viral shedding can occur whilst on suppressive treatment even in the absence of clinically obvious recurrences, a point worth mentioning to patients.

Pregnancy

Neonatal herpes carries a significant mortality and morbidity but is fortunately a rare condition in the UK. The baby is at greatest risk if the mother develops primary herpes during the last trimester, particularly toward the time of labor. Interestingly, recent studies have shown that most babies with neonatal herpes acquire their infection from mothers with asymptomatic primary herpes who are shedding virus during the birth.

There is minimal risk to the baby in women with recurrent disease. This is probably related to protective antibody passing across the placenta and to a much lower rate of viral shedding from the cervix in recurrent disease compared with primary infection. This is important to mention after

diagnosing herpes as issues regarding future pregnancies are high on the list of worries. Women with a past history of genital herpes should be advised to present early in labor and undergo a careful examination for evidence of genital lesions. Although there is minimal risk to the baby, in view of the severity of neonatal herpes, most obstetricians would advise cesarean section rather than vaginal delivery if lesions are present. Daily aciclovir can be used in the last 4 weeks of pregnancy to reduce the risk of clinical recurrence and the need for cesarean section. Although aciclovir is not licensed for use in pregnancy, there is substantial evidence to support its safety. The diagnosis and management of genital herpes can sometimes pose problems. Referral to GU medicine should therefore be considered even if it is just for discussion or to provide information.

Other Causes of Genital Ulceration

Candidiasis

Vulval candidiasis may occasionally be mistaken for genital herpes particularly when there is severe vulval soreness with disruption of the vulval epithelium. Conversely, recurrent herpes may produce only minor vulval discomfort and be dismissed by the patient as simply an attack of "thrush." For this reason it is important to explain to patients with a history of herpes that minor genital symptoms may be a recurrence of their herpes and that necessary care should be taken during sexual intercourse.

Syphilis

Syphilis is now making a reappearance in the UK and should be considered in all patients presenting with genital ulceration. The primary chancre of primary syphilis is usually painless, although secondary infection may produce some tenderness (Fig. 16.5). Patients should be referred to GU

Figure 16.5 Chancre of primary syphilis affecting the penis

medicine if there is the slightest doubt regarding the clinical diagnosis of genital ulceration. Dark-ground microscopy for treponemes can be performed on site and optimal specimens will be obtained for herpes culture. Nucleic acid amplification testing (NAAT) is also now available in many laboratories and is proving an excellent method of distinguishing herpes from syphilis from a genital ulcer swab. Remember that syphilis serology may be negative in primary syphilis, although Treponema pallidum IgM antibody should be requested if a chancre is considered a possible diagnosis. IgM should become detectable toward the second week of infection with IgG becoming positive at about 4 weeks.

However, it is still prudent to advise patients with genital ulceration of unknown cause to have repeat syphilis serology performed at 3 months after presentation.

The chancre of primary syphilis may pass unnoticed and the patient presents with the generalized rash of secondary syphilis often associated with lymphadenopathy and fever. Syphilis should be considered in the differential diagnosis of patients presenting with a glandular fever like illness and whilst taking a sexual history please remember the possibility of HIV seroconversion illness.

Fixed Drug Eruption

More severe cases may lead to ulceration (see Fig. 15.10, page 109).

Chancroid and Lymphogranuloma Venereum

These are common tropical STIs but rare in the UK, although cases of LGV proctitis (rather than ulceration) amongst men who have sex with men have recently been reported in Western Europe, including the UK. Remember to ask about sexual contact with partners from abroad.

Aphthous Ulceration and Behçet's Disease

The genital ulcers in Behçet's disease are very tender and usually have a well-demarcated edge (Fig. 16.6). To make a diagnosis of Behçet's disease there should also be a history of oral ulceration together with eye, skin, or neurological

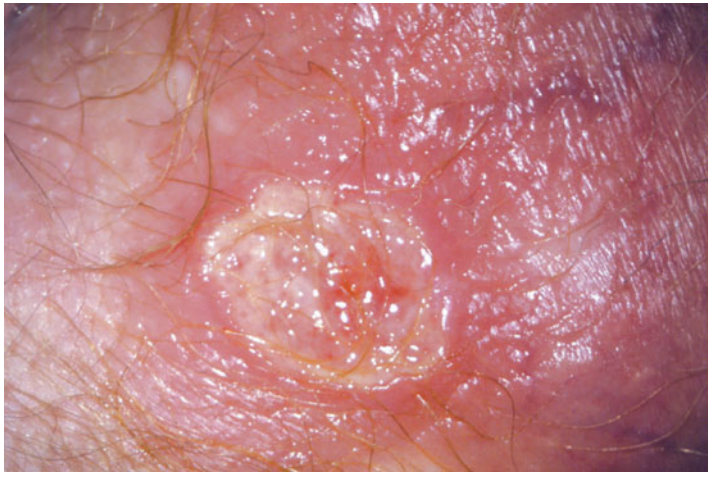

FIGURE 16.6 Genital ulcer of Behçet's syndrome (similar appearance with aphthous ulceration)

complications. In women, one more commonly sees simple aphthous ulceration affecting the mouth and labia, there being no other features to suggest Behçet's disease.

Trauma

Traumatic lesions are usually the result of forced sexual intercourse or rather too vigorous oral sex. The lesions often appear as abrasions rather than true ulcers; however, a swab for herpes simplex virus culture/NAAT should be performed as herpes may present in this fashion with the patient often under the misguided impression that the lesion was related to physical skin damage.

Ulcers of Lipschutz

In 1913, Lipschutz described cases of acute vulval ulceration associated with fever and lymphadenopathy. More recently, genital ulceration has been described as an uncommon complication of infectious mononucleosis and it is therefore possible that Lipschutz's original cases related to Epstein-Barr virus infection.

Bullous Skin Conditions

Pemphigus and cicatricial pemphigoid very occasionally present on the genitalia. The bullae may be short-lived leaving areas of eroded epithelium.

Any case of genital ulceration for which a definitive diagnosis cannot be made should ideally be referred to GU medicine for assessment and further investigation.

Chapter 17
Genital "Lumps"

Genital Warts

The most frequently seen genital "lumps" in general practice are genital warts or condylomata acuminata ("pointed condylomata"). The term "venereal warts" is now outdated and should not be used. Genital warts are the second commonest STI in the UK and are caused by human papillomavirus (HPV), which is the commonest sexually transmitted viral infection in the UK. Studies using nucleic acid amplification tests (e.g. polymerase chain reaction) for detecting tiny amounts of HPV DNA suggest that many sexually active people carry low levels of HPV in the genital tract for variable periods of time but only a small number of infected individuals develop warts. The natural history and infectivity of this so-called "subclinical" HPV infection is unknown.

A prophylactic vaccine against HPV types 6, 11, 16 and 18 is available and should provide protection against genital warts and many cases of cervical, vulval, anal and penile intraepithelial neoplasia and carcinoma, if administered before sexual debut.

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Management of Genital Warts

Patients with genital warts should ideally be referred to GU medicine for assessment and initiation of treatment, irrespective of the age of the patient and the length of time the warts have been present. Genital warts are almost always sexually acquired (Figs. 17.1, 17.2, 17.3, 17.4, and 17.5), although lesions may have been present for many months or even years before the patient seeks a medical opinion. Very occasionally hand warts may be transferred to the genitalia and this should be considered if the lesions resemble planar warts rather than condylomata acuminata.

The incubation period between acquiring HPV infection and the appearance of warts may be many months or, very occasionally, even years, which can lead to some difficulty in determining exactly when and from whom the infection was caught.

Anal warts (Fig. 17.6) are commonly seen in both women and heterosexual men, either with or without genital lesions, and these may extend into the anal canal. Anal warts are not indicative of anal intercourse; the method by which HPV is transferred to the anus of a heterosexual male is currently unknown

HPV infection is sexually acquired and most patients should be checked for other STIs, in particular chlamydial

Figure 17.1 Penile wart

FIGURE 17.2 Intra-meatal wart

FIGURE 17.3 Vulval warts

FIGURE 17.4 Keratinized vulval warts

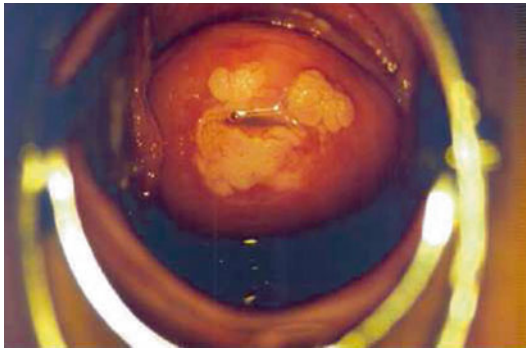

FIGURE 17.5 Cervical warts

FIGURE 17.6 Anal warts

infection. Remember that STIs are frequently carried without symptoms. Sexual partners should be carefully assessed, which for female partners should include vaginal and cervical examination.

Treatment

1. Cryotherapy, usually with liquid nitrogen, is an extremely effective and generally well tolerated treatment that does not require a local anesthetic. This is a useful first-line treatment.

2. Podophyllin is a time-honored treatment that requires application by medical staff twice or thrice weekly and is now rarely used in the UK. Anecdotal evidence suggests that a combination of cryotherapy and topical podophyllin is more effective than either therapy alone.
3. Podophyllotoxin is a pure preparation of one of the active ingredients of podophyllin and has the advantage of self-application either as a lotion or as a cream. Some women find it difficult to apply, particularly if lesions are small.
4. Imiquimod is also a self-applied cream that works by stimulating the cell-mediated immune response against HPV in the infected epithelium. As with podophyllotoxin, some patients experience soreness at the site of application. Response to treatment is sometimes a little slow, perhaps taking 8–12 weeks to act in some patients, but initial studies have suggested a lower recurrence rate than with other forms of treatment.
5. Trichloracetic acid acts as a caustic agent and can be useful for burning off small warts, although it is uncommonly used now in the UK.
6. Diathermy, scissor excision and laser ablation require a local anesthetic; prior application of prilocaine plus lignocaine cream makes this more tolerable. Very useful for persistent or large warts and should be considered earlier rather than later in the course of treatment.

Since warts may resolve without treatment a "wait and see" approach may be considered. Unfortunately warts may enlarge and spread making treatment at a later date more difficult. In addition, most patients dislike the physical appearance of genital warts and usually opt for treatment.

The method of treatment used should be guided by lesion type, site, size, number, and patient needs. Single or small numbers of warts are effectively treated with cryotherapy or removal under local anesthetic whereas numerous lesions may be better approached with a self-applied treatment such as imiquimod or podophyllotoxin. More detailed advice is probably better sought from a specialist text (see Further Reading).

Other Management Issues and Frequently Asked Questions

Recurrences

Genital warts have a tendency to recur, in some cases with alarming frequency. Such patients may require psychological support.

HPV Infection and Anogenital Cancer

HPV is now recognized as an important cause of ano-genital and tonsillar cancer. Of the over 100 different types of HPV, about 30 are recognized as having the potential to cause dysplasia (intraepithelial neoplasia) and cancer. The commonest so-called "high risk" types are HPV-16 and 18. HPV-6 and 11 are found in genital warts and are considered "low-risk" HPV types. As mentioned earlier, many sexually active people harbor low levels of HPV in the genital tract, including the high-risk types 16 or 18. In most individuals this infection probably eventually clears, in others it may persist indefinitely but pose no problem. In a small number of individuals, HPV infection may induce cellular dysplastic change. Dysplasia may revert to normal over time or, again in a small number of individuals, progress to cancer. The chances of an individual infected with a "high-risk" HPV type developing a cervical cancer depends on several factors. These include the quantity of virus present, the genetically determined immunological host response to the virus, which will have some control over viral persistence, and other cofactors such as smoking, and possibly the presence of other genital infections (e.g. *Chlamydia*). Current UK guidelines do not advise more frequent cervical cytology in women with a history of genital warts or genital wart contact.

Condom Use

Most clinicians advise the use of condoms while warts are present and most patients feel comfortable with this. Although HPV remains in the epithelium after warts have cleared, the degree of infectivity of subclinically carried virus is currently unknown as is the protective effect of condoms for subclinical infection. It is therefore very difficult to accurately advise for how long condoms should be used after apparently successful treatment. There would appear to be less need to use condoms in long-term relationships as the exposed partner is likely to have already been infected with the virus.

Oral Sex

As warts can occasionally be passed to the mouth through oro-genital contact, it is usually recommended that couples refrain from oral sex whilst warts are present. However, depending upon the site and extent of lesions, with sufficient care it may be possible to avoid direct wart contact.

Other Causes of Genital "Lumps"

Hirsuties Papillaris Penis or Pearly Penile Papules

"Hirsuties papillaris penis" or "penile pearly pink papules" is one of the commonest conditions to be mistaken for genital warts in men. The lesions appear as rows of small pink or white filiform papillae on the corona of the glans penis and by the frenulum (Fig. 17.7). They first appear at puberty and are found to varying degrees in up to 40 % of men. They are harmless but a frequent cause of anxiety; if you are unsure, ask GU medicine to assess. Tiny papules by the frenulum can

FIGURE 17.7 Hirsuties papillaris penis (penile papules)

be difficult to distinguish from warts and may require examination with the aid of a magnifying glass or colposcope.

Penile papules can be removed by cryotherapy or laser ablation if causing sufficient cosmetic anxiety but reassurance is usually sufficient.

Vulval Micropapillae

Many women have small finger-like projections on the inner surface of the labia minora and around the introitus. These are benign micropapillae (Fig. 17.8) and may be seen in conjunction with warts, which often makes clinical assessment difficult. Micropapillae are not related to HPV infection and therefore do not warrant treatment. Examination with some form of magnification, such as the colposcope, is often required to differentiate these lesions from genital warts.

Fordyce Spots

"Fordyce spots" (Figs. 17.9 and 17.10) are ectopic sebaceous glands, extremely common and seen in both men and women as tiny cream-colored spots just under the skin surface.

FIGURE 17.8 Vulval micropapillae

FIGURE 17.9 Vulval Fordyce spots

FIGURE 17.10 Penile Fordyce spots

Pilo-Sebaceous Glands

These are commonly found along the penile shaft but in some men they can be particularly numerous and prominent, giving rise to concern. The patient should be reassured that these are normal skin glands and do not require treatment (Fig. 17.11).

Seborrhoeic Keratoses

These more commonly appear with increasing age and may resemble warts. Removal by curettage, scissor or shave excision under local anaesthetic for histological examination is recommended if there is diagnostic uncertainty. Cryotherapy is an alternative effective method of treatment (Fig. 17.12).

Molluscum Contagiosum

Lesions are classically smooth and rounded with a central punctum although polypoid forms are occasionally seen (Fig. 17.13). Treatment is with cryotherapy. Applying phenol with a sharpened orange stick tends to be less well tolerated. Recent reports

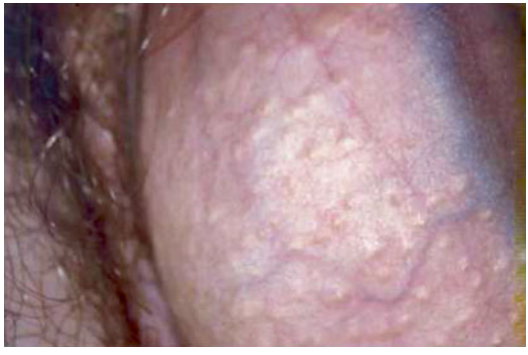

FIGURE 17.11 Prominent pilo-sebaceous glands on the penile shaft

Figure 17.12 Seborrhoeic keratoses

Figure 17.13 Molluscum contagiosum

have also shown promising results using imiquimod, podophyllotoxin and cidofovir. Lesions may clear without treatment although this may take some months to occur.

Sebaceous Cysts

These present as round, creamy yellow, smooth swellings. Scrotal cysts may reach a centimeter in diameter and are often multiple (Fig. 17.14).

FIGURE 17.14 Scrotal sebaceous cysts

Lichen Planus

Papular lesions of lichen planus may be mistaken for flat or papular warts. Diagnosis is aided by the violaceous color and the presence of fine white linear striae (Wickham's striae) and by the presence of the condition elsewhere on the body (see also page 107, Fig. 15.5).

Lichen Nitidus

An uncommon condition presenting as very tiny pink or brown, dome-shaped, shiny papules. This is considered to be a form of lichen planus.

Psoriasis

Plaques of psoriasis may occasionally be misdiagnosed as flat warts. Genital lesions often lack the characteristic silvery scale leaving a red, slightly shiny surface (see also page 107, Fig. 15.6).

Figure 17.15 Condylomata lata of secondary syphilis

Condylomata Lata

A feature of secondary syphilis that presents as pink or grey, moist, slightly elevated lesions (Fig. 17.15). There are often other signs of syphilis (e.g. generalized rash, oral lesions, lymphadenopathy) and syphilis serology (*T. pallidum* antibody) VDRL (Venereal Diseases Research Laboratories) and TPHA (*T. pallidum* hemagglutination assay)) will be positive at this stage of the disease.

PIN and Squamous Cell Carcinoma

Penile intraepithelial neoplasia presents as a flat or papular, erythematous or whitish, warty looking lesion (Fig. 17.16 and page 109, Fig. 15.9). The application of acetic acid (gauze swab soaked in 5 % acetic acid and held against the lesion for 3–5 min) highlights the lesions, although examination with a colposcope may be needed to reveal the characteristic features of punctation. Biopsy is required to confirm the clinical diagnosis. PIN is a pre-malignant condition. Cancerous lesions usually feel hard or gritty, often bleed on contact, and may be ulcerated. Genital warts rarely undergo malignant change but any suspicious lesion requires biopsy.

FIGURE 17.16 Penile intraepithelial neoplasia (PIN)

Lymphocele

A common condition presenting as a smooth, firm, worm-like cord in or below the coronal sulcus just below the glans penis. There may be a history of recent strenuous sexual activity. There is no specific treatment and the condition resolves with time (Fig. 17.17).

Peyronie's Disease

A condition of unknown cause characterized by the development of fibrous plaques *within* the penis. Some patients give a history of penile trauma which is thought to allow bleeding into the tunica albuginea. This initiates an inflammatory reaction that leads to fibrin deposition and scar formation. The first sign noted by the patient is often a painless lump, sometimes associated with discomfort on erection. As the condition progresses, the penis may bend to one side on erection, occasionally making intercourse impossible. Some patients notice the penile bending before a lump is detected. There is usually spontaneous improvement with time (often months or years) and reassurance may be all that is required. There are reports of success with tamoxifen used in the early painful

FIGURE 17.17 Penile lymphocoele

stage of the condition and vitamin E may also be worth considering when erections are impaired but generally the response to medical intervention is poor. Other reported approaches include potassium para-aminobenzoate (POTABA) and intralesional verapamil or triamcinolone injection. Surgery is best reserved for those patients with a penile deformity that interferes with intercourse.

Chapter 18
Genital Irritation

The patient presenting with genital irritation should be asked the following:

- *Exactly where is the irritation* – penis, scrotum, toward the entrance of the vagina, on the labia majora, above the genitalia in the pubic area?
- Is there anything to see, such as a rash, warts, or pubic lice?
- Is there irritation elsewhere on the body?

The following are the commonest causes of genital irritation:

- *Dermatoses* – dermatitis, lichen simplex, lichen planus, lichen sclerosus, etc.
- *Infection* – candidiasis, early genital herpes (pre-ulcerative stage), HPV infection (warts or VIN), trichomoniasis, pubic lice.

These conditions are mostly covered in other sections (see Chaps. 8 and 15). This chapter will focus on the two common parasitic infections, pubic lice and scabies.

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Pubic Lice ("Crabs" or Pediculosis)

The pubic louse (*Phthirus pubis*) may spread to any hairy part of the body with the exception of the scalp and eyebrows. Very occasionally the eyelashes may be involved. Transmission is by body contact although toilet seats and shared clothing have been implicated in a small number of cases. Pubic lice are very slow movers and live for only a day away from the host. Many countries have reported a reduction in cases of pubic lice, thought possibly to be related to the fashion of genital and pubic shaving.

Symptoms

Irritation is the commonest presenting symptom and the severity will depend on the level of hypersensitivity to mite antigen. In a previously unexposed individual, symptoms may take from about 5 days to several weeks to occur. Excessive scratching can sometimes lead to excoriation and secondary infection. A large infestation resulting in multiple bites over a short period of time may cause mild fever and general malaise.

Signs

A careful search for eggs (nits) and lice may be required in milder infections. To the uninitiated, lice resemble "freckles" or small brown "scabs" (Fig. 18.1). Sometimes there are small blue marks at feeding sites. Pubic lice move on average a maximum of only 10 cm a day so it is unusual to see any activity during a 5 minute consultation.

Management

Clothing should be laundered in hot water or by dry cleaning.

The most widely used pediculosides are 0.5 % malathion lotion, 1 % permethrin cream, 0.2 % phenothrin, and 0.5 or 1 %

FIGURE 18.1 Pubic lice and nits (seen as tiny brown 'marks') – may be difficult to visualise in mild infections

carbaryl. Lotions are thought to be more effective than shampoos, and should be applied to all body hair including the beard and moustache if necessary. Preparations should be washed off after 12 h and a second treatment applied 1 week later. This will kill any lice emerging from surviving eggs, although the presence of eggs does not signify treatment failure. The possibility of itching persisting after successful treatment should be mentioned to the patient. If this proves a problem, consider using topical hydrocortisone or an oral antihistamine, such as one of the sedative preparations, at night.

Shaving the hair is unnecessary and may aggravate the irritation. Sexual contacts should be assessed and treated as appropriate. An infestation affecting the eyelashes may be effectively treated with permethrin or by applying Vaseline gently to the lashes.

Scabies

The scabies mite (*Sarcoptes scabei*) is much smaller than the pubic louse and is only just visible to the naked eye. Only the female mite buries into the skin and may live for a couple of months during which time it may lay over 150 eggs and move a distance of 15 cm. Transmission is by skin to skin contact, which may need to be prolonged. There are reported cases of

transmission by wearing infected clothes. Although scabies is seen in school-age children, transmission within schools is uncommon. Outbreaks occasionally occur in nursing homes, hospitals, and other institutions. The incubation period for a first attack is up to 8 weeks with subsequent attacks producing symptoms within a few days because of previous sensitization.

Symptoms

Irritation tends to be generalized, sparing the head, and is worse at night.

Signs

Genital lesions are generally found only in men and appear as nodules on the penile shaft and scrotum. There is usually evidence of scabies elsewhere, particularly favored sites being the finger webs and sides of the fingers, flexor surfaces of the wrists, extensor surfaces of the elbows, anterior axillary folds, umbilicus, nipples, and buttock creases.

Classical lesions include the following:

- Short, wavy, dirty appearing burrows
- Small, erythematous, eczematous papules
- Small nodules (penis, scrotum) (Fig. 18.2).

The scalp, face, and neck are spared in adults. Scratch marks are frequently seen and secondary eczematization and infection may mask the other features and make diagnosis rather more difficult.

Diagnosis

Scabies is often diagnosed purely on clinical grounds: intense irritation, especially at night, characteristic lesions, and similar complaints in household members or sexual partners.

Figure 18.2 Scabetic nodules

Where possible, however, an attempt should be made to confirm the diagnosis which involves identifying the mite, eggs, or larvae under the microscope. First place a drop or two of Indian ink on to a suspected burrow and remove any excess with an alcohol wipe. This helps to "highlight" the burrow which should then be scraped gently with a scalpel blade and the material obtained transferred to a microscope slide. Apply a cover slip and examine with a microscope using low-power magnification.

Management

1. All household members and sexual partners should be treated: they may remain asymptomatic for up to 8 weeks and during that time spread the disease unknowingly.
2. All patients should be warned to expect continued irritation for as long as 3 months after successful treatment.
3. Warn patients against overtreatment as this may cause an irritant dermatitis.
4. Lotions are easier to apply than creams.
5. The lotion should be applied to all of the skin from the neck downward with particular attention to palms, soles,

interdigital spaces, and genitals. This is most easily performed with a 3–5 cm paint brush and help is usually required to reach the more distant areas.
6. Bathing before the lotion is applied is unnecessary and may increase systemic absorption of the scabicide.
7. Antihistamines and crotamiton cream may help to relieve the irritation.
8. Re-infection from bed linen and clothing is considered by some to be of minimal risk.

The treatments available include 0.5 % malathion lotion and 5 % permethrin cream. These should be washed off 24 h and 12 h after application, respectively and re-applied after 7 days. Oral Ivermectin appears to work best in conjunction with topical treatment

Chapter 19
Human Immunodeficiency Virus (HIV) Infection

In the UK, GU medicine physicians provide much of the outpatient care, and in some hospitals also the in-patient care, for patients with HIV infection. The diagnosis still carries a certain stigma and may bring to the forefront emotions regarding past sexual relationships, sexuality, or drug abuse. In the 1980s, AIDS received a tremendous amount of hype by "medical" journalists and social commentators but with advances in our knowledge of the disease and developments in treatment, HIV infection should now be viewed as a chronic illness. Primary care practitioners are playing more of a role in managing patients with HIV infection, particularly during the pre-treatment years. However, once the disease progresses and highly active antiretroviral treatment (HAART) is considered necessary, specialist input should be sought. Inappropriate drug combinations can seriously limit future treatment strategies through the development of drug resistance, and choosing the right therapy for an individual patient is not always a straightforward matter. This chapter deals with just a few of the important issues regarding HIV antibody testing and patient management.

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HIV Antibody Testing

1. 'HIV testing' generally falls into one of four categories. All individuals having a check for sexually transmitted infection should be offered an HIV antibody test and many GU Medicine/Sexual Health clinics adopt an 'opt out' policy. Many consider their risk of infection to be minimal but decide to go ahead with the test. HIV testing has become much more of a routine part of the sexual health screen and although an individual should be aware they are being tested for HIV infection, risk assessment is no longer considered an essential part of the process and 'counselling', in particular, is reserved for a small minority with concerns.

   A second group specifically request an HIV antibody test for "peace of mind". They may be entering a new sexual relationship and wish to clear up a nagging doubt about a previous partner or they may have symptoms that they think may be due to HIV infection. It is important to try and assess the degree of risk in this group as their concern and anxiety are often much greater than their history suggests. Many can usually be reassured at the time of testing with further reassurance provided by a negative result. Risk assessment should include a brief sexual history, in particular whether there has been previous sexual contact with bisexual or homosexual men, injecting drug users, or persons from "high risk" areas of the world? Of course one can never be certain about the behavioral history of their previous partners and so direct questioning only provides a rough guide to the true risk. Although an unexpected positive result occasionally turns up, more commonly there is a clue from the history. Remember that injecting users who deny ever sharing needles and syringes ("works") may have been exposed to HIV from their sexual partners who do share needles.

   A third group comprises patients presenting to a medical practitioner with symptoms or clinical findings possibly due to HIV infection. A low threshold for testing is important. Some practitioners are deterred from testing because they are uncomfortable with the thought of 'counselling' the

patient and, in particular, the need to take a sexual history. I would advise against counselling and just state to the patient that you would like to perform an 'HIV test', along with other investigations, as it is important to rule out HIV infection as a contributing cause to the presenting problem. No counselling or sexual history taking is required. The normalization of HIV testing has been emphasized in the UK National Guidelines for HIV testing. Surveillance data have shown that approximately one-third of all HIV infections in adults in the UK remain undiagnosed and about a quarter of newly diagnosed individuals are immunosuppressed with CD4 lymphocyte count of less than 200/mL. Late diagnosis of HIV infection is associated with increased mortality and morbidity and an impaired response to anti-retroviral treatment. Also, earlier diagnosis should result in reduced transmission to sexual partners as most infected with HIV will take the necessary precautions to prevent transmission. Data from the United States suggest that over 50 % of new infections occur through transmission from individuals who were unaware they were infected.

A fourth group undergoing testing are those individuals coming into contact with clinical services (e.g. Emergency Departments, Out-patient clinics) in areas where the prevalence of HIV exceeds 0.05 %, as this has now been found to be cost effective.

2. The recommended test for diagnosing HIV infection is a 'fourth generation assay'. This tests for both HIV antibody and p24 antigen and will detect most infected individuals at 4 weeks after exposure. Most advise that patients presenting before 4 weeks should still be tested but the 'window period' explained and a repeat test performed at 4 weeks post-exposure. A further test at 8 weeks may be considered if the reported exposure carries a high transmission risk. Individuals at ongoing risk of HIV infection should ideally be retested at regular intervals.
3. As emphasized above, HIV testing has become much more of a routine investigation and should be considered as such. The offer of an HIV test should be documented in the patient's medical record together with any relevant history.

If the patient refuses a test the reasons for this should be documented.

4. Positive HIV results should ideally be given face to face in a confidential environment. The pathway for onward referral should be established before the result is given and an appointment provided with a specialist HIV practitioner as soon as possible. The wide range of anti-retroviral treatment currently available does mean that an optimistic and upbeat approach is warranted in most circumstances, although those presenting with severe immunosuppression may require a more tempered discussion.
5. The two important initial blood tests that guide discussion post diagnosis are the CD4 lymphocyte count and HIV genotype. The former provides information on the degree of immunosuppression and will determine when to start anti-retroviral treatment or HAART (highly active anti-retroviral treatment). The HIV genotype provides information on which anti-retrovirals the virus is sensitive to and hence guides treatment choice.

HAART is usually started when the CD4 lymphocyte count falls close to or below 350/mL. Some patients may wish to start treatment before this time, particularly to reduce the risk of transmission to others. This should be discussed and the decision to start treatment respected if there is practitioner concern regarding onward transmission. A recent study has also shown possible benefit from starting HAART at diagnosis. Treatment may be started earlier if the patient has other HIV related disease (e.g. renal, neurological) or is co-infected with hepatitis B or C.

6. Although needle-stick injuries are more common in the hospital setting, occasionally the GP will be consulted following an injury in the community or in the surgery. The risk of acquiring HIV from a needle-stick injury from an infected patient not taking anti-retrovirals is approximately 0.3 %. The risk of transmission following an injury from a needle of "unknown origin" is obviously less. The risk of acquiring hepatitis B following a needle-stick injury from an "e antigen" positive patient is 30 % and the risk of hepatitis C infection from a needle-stick injury is approximately

3 %. If the injury were sustained by a doctor or nurse from a patient in the surgery, direct questioning will help to determine the risk of infection, although bear in mind that questions regarding sexuality and drug use may not always be answered honestly and that some infected patients give no history of "risk contact". If there is concern, ask the patient whether they would consent to being tested for HIV, hepatitis B and, if intravenous drug misuse is suspected, hepatitis C infection. If consent is denied and there is a definite risk of infection, consider a booster dose of hepatitis B vaccine, assuming that the healthcare worker has been previously vaccinated and that antibody levels are unknown. HIV serology should be performed at 4 weeks and condoms used during this time.

Specific hepatitis B immunoglobulin (HBIG) in addition to hepatitis B vaccination should be considered for patients sustaining a needle-stick injury in the community. A careful evaluation is required in each case to determine the true risk and whether prophylaxis is needed. If in doubt, err on the side of caution. HBIG should be given preferably within 48 h and not later than a week after exposure at a dose of 200 IU for children of 0–4 years, 300 IU for children of 5–9 years and 500 IU for adults and children over 10 years. HIV serology should be performed at 4 weeks. Discussion with your local Public Health Laboratory is advisable; they may already have guidelines for the management of needle-stick injuries in general practice.

7. Post exposure prophylaxis (PEP) should be strongly considered if there is needle-stick injury involving HIV infected blood or if an individual has been potentially exposed to HIV through sexual contact (PEPSE). Three drugs are administered as soon as possible (ideally within 24 h) although prophylaxis may be given up to 72 h post-exposure. The decision to start PEP and PEPSE is not always straightforward (e.g. has the HIV infected person drug resistant virus, is the viral load undetectable, as is usually the case when on treatment, or is it very high, etc.) and specialist advice should be sought.
8. HIV testing is to be encouraged within general practice. This would certainly help to normalise testing and should identify infected individuals in whom there may otherwise

be some delay before diagnosis. There are however a few points worth considering. First, for reasons of confidentiality, many patients prefer not to have a record of HIV antibody testing in their general practice notes. If the result proves positive then of course it is important that the general practitioner is aware of the diagnosis. Secondly, patients with possible risk factors for infection may be better assessed and tested in the GU medicine setting where full support and information can be provided if the result is positive. Thirdly, if an individual is concerned about possible sexual exposure to HIV then it is wise to check for other sexually transmitted infections, such as *Chlamydia*, which are far more common than HIV.

9. Many GU medicine clinics now run 'point-of care' or "fast service" HIV antibody testing that provides results while the patient waits or within 24 h respectively. This is ideal for the anxious patient who is deterred from testing because of a several day wait for results.

Clinical Features and Management

Seroconversion Illness (Primary HIV Infection)

Over 50 % of patients report a "flu-like" or "glandular-fever like" illness at the time of seroconversion (i.e. about 2–6 months after infection). Starting and continuing treatment with anti-retrovirals has been recommended in primary HIV infection particularly if there is neurological involvement, a CD4 lymphocyte count <350/mL or an AIDS defining illness.

Persistent Generalized Lymphadenopathy

After a variable period of time a number of patients develop cervical and axillary lymphadenopathy. This is usually painless and the glands affected are usually >1 cm in diameter. Lymphadenopathy is of no prognostic significance.

Constitutional Symptoms

Most patients with HIV remain asymptomatic for a number of years. During this time the virus is replicating in the lymphoid tissue and other body sites and although the CD4 lymphocytes are being destroyed, the immune system is sufficiently robust to maintain normal lymphocyte levels. After a period of usually some years, the immune system shows signs of deterioration and the CD4 lymphocyte count falls. This is sometimes associated with the development of constitutional symptoms such as loss of weight, night sweats, diarrhea, and profound lethargy. It is important to remember, however, that many patients with low CD4 cell counts are asymptomatic. Monitoring the CD4 count every 3–6 months means that most patients are now started on treatment before symptoms develop. Symptoms usually resolve with anti-retroviral treatment as immune status improves.

Acquired Immunodeficiency Syndrome (AIDS)

This is an emotive and not particularly helpful term clinically. A diagnosis of AIDS indicates marked immunosuppression and a number of clinical conditions ('indicator disease') will place the patient in the diagnostic category of AIDS. In addition, all patients with a CD4 lymphocyte count <200 cells/mL irrespective of the presence or absence of an 'indicator disease' are now classified as having AIDS. However, it is important to reassure the patient that HARRT will often lead to dramatic clinical improvement, although this obviously will depend upon the severity of the AIDS defining illness.

A small subgroup of patients with HIV remains clinically well for many years, showing little evidence of disease progression, and with low level or undetectable viraemia. This is thought to be the result of an initial strong and durable anti-HIV immune response leading to a down regulation of viral replication in lymphoid tissue.

AIDS defining conditions are listed in Table 19.1.

Table 19.1 AIDS defining conditions

Bacterial pneumonia (recurrent)
Candidiasis (esophageal, tracheal or bronchial; not oral)
CD4 lymphocyte count <200/mL or <14 % of all lymphocytes
Cervical cancer (carcinoma in situ is not included)
Coccidiomycosis (disseminated or extrapulmonary)
Cryptococcal meningitis and other extrapulmonary disease
Cryptosporidiosis with diarrhea persisting for >1 month
Cytomegalovirus disease (other than liver, spleen, or lymph nodes)
Herpes simplex infection: ulceration persisting for longer than 1 month, bronchitis, pneumonitis, esophagitis
HIV encephalopathy
HIV wasting syndrome
Histoplasmosis (disseminated or extrapulmonary)
Isosporiasis with diarrhea persisting for >1 month
Kaposi's sarcoma
Lymphoma of the brain
Non-Hodgkin's lymphoma
Mycobacterium avium complex disease
Mycobacterium tuberculosis: any site (pulmonary or extrapulmonary)
Mycobacterium of other species: disseminated or extrapulmonary
Pneumocystis jirovecii (previously known as *Pneumocystis carinii*) pneumonia
Progressive multifocal leucoencephalopathy
Salmonella septicemia (recurrent)
Toxoplasmosis of the brain

Important Management Points

1. Clinical review every 3–6 months is advisable. When patients are well the fewer visits to the clinic the better as it may serve as an unhappy reminder of their diagnosis. Some patients, however, do require psychological support, particularly at the time of diagnosis and when there is evidence of immunosuppression or symptoms related to the infection.
2. Issues which should be addressed and discussed include the following:

   (a) *Need to notify sexual or "works-sharing" partners.* This is an important issue that requires careful discussion. Partner notification is one of the many tasks performed by the GU medicine clinic health adviser and should be considered when a patient is reluctant to contact a previous partner directly. Most patients, however, fully appreciate the need to inform previous contacts and take on this responsibility.

   (b) *How to avoid passing on the infection (*i.e. *what sexual practices are safe or unsafe; safe-injecting practices).* Condoms provide an adequate barrier to HIV; however, problems arise when they are not used consistently or when they split or slip off the penis. Extra strong condoms are available for anal intercourse, although these may occasionally tear, and remember to advise the use of water-based rather than oil-based lubricants.

   There is a small but definite risk of transmitting HIV through oral sex; advise the use of a dental dam (a thin latex square) or flavored condoms.

   Practices which may draw blood, such as biting or scratching, should be avoided.

   Kissing, mutual masturbation, and body-rubbing are considered safe. Injecting drug users should avoid sharing contaminated needles, spoons, and syringes ("works") and many pharmacists and drug agencies run needle-exchange schemes. Boiling used syringes

and needles is a less safe alternative. Flushing "works" with bleach reduces levels of active virus but is unreliable and should only be considered when there is no reasonable alternative. Full-strength household bleach is required with a minimum contact time of 30 s.

(c) *Who should be informed or needs to know the diagnosis.* Advise the patient to think carefully before telling others of the diagnosis. Employers and work colleagues rarely need to be informed.

(d) *Healthy lifestyle.* This involves getting enough rest, taking exercise as tolerated, reducing and eventually stopping smoking, eating a "healthy" diet, and reducing unnecessary stress. Some patients benefit from complementary medical care such as reflexology, aromatherapy, facial massage, and relaxation and visualization techniques.

(e) *Pregnancy and the risk to the infant.* Most mother to baby transmission occurs late in pregnancy or during delivery. Without treatment, transmission rates vary from 15 to 20 % in Europe and are higher, in the region of 30 %, in Africa. With treatment the risk of transmission may be reduced to less than 1 %. An increased risk of transmission to the baby is associated with a high maternal viral load, low CD4 lymphocyte count, premature rupture of membranes, and vaginal delivery with a detectable viral load. It is current practice to advise taking antiretroviral treatment during the later stages of pregnancy, either as a single agent (zidovudine) or as a triple drug regimen. Vaginal delivery is recommended if the HIV RNA level ('viral load') is below 50 copies/ml at 36 weeks gestation or delivery, otherwise an elective cesarean section is recommended at 38 weeks. The baby should be prescribed zidovudine syrup for 4 weeks if the maternal HIV RNA is below 50 copies/ml and a triple drug regimen if the viral load is above this level. Breastfeeding carries an additional risk of transmission and should be advised against where there are safe

alternatives. Breast-feeding, however, is still recommended in the developing world where the protection against infectious disease outweighs the risk of HIV transmission.

(f) *What support is available.* Support will be available at both local and national level. Information about local support groups is best obtained from your local GU medicine clinic.

(g) *Immunization.* Live vaccines are not recommended in patients with symptomatic HIV infection or CD4 counts <200 cells/mL. The contraindications to the use of live vaccines that apply to the general population also apply to HIV-infected persons, regardless of the CD4 cell count. Following hepatitis B vaccination, response rates and hepatitis B surface antibody levels are often reduced and some individuals require revaccination with a double dose of vaccine. Meningococcus vaccination is recommended in all HIV-infected young adults <25 years of age who have not previously received the vaccine, as per UK national guidelines. Influenza and pneumococcal vaccination are also recommended although it is important to bear in mind that antibody levels and duration of response may be reduced, particularly if the CD4 count is <200 cells/mL.

(h) *Clinical follow-up.* The importance of clinical follow-up should be stressed and an emphasis placed on the role of drugs to prevent complications, slow disease progression, and restore immune function.

3. Baseline investigations performed routinely after diagnosis include the following:

- Confirmatory HIV antibody test
- HIV RNA level (also known as the "viral load")
- Viral genotyping (also known as "drug resistance testing" – this helps to determine which drugs to use when starting HAART)
- Full blood count

- T lymphocyte subsets (CD4 and CD8)
- Liver function tests
- Fasting lipids (a number of antiretroviral drugs raise lipid levels)
- Hepatitis B and C serology
- Syphilis serology
- Toxoplasma serology
- Cytomegalovirus serology
- Chest radiograph
- urinalysis
- Weight

4. The CD4 lymphocyte count, CD4 percentage and HIV RNA level ("viral load") should be measured on a regular basis as this provides some guide to immune status. Every 6 months is usually sufficient in the early stage of infection if the CD4 count is high. More frequent monitoring is required when the CD4 count or percentage starts to decline as the decision to start HAART will be determined by the rate of decline or the level reached. Most clinicians advise starting treatment as the count drops towards or below 350 cells/ml. HAART would also be considered in symptomatic patients irrespective of the CD4 count. This approach may change as a recent study has shown possible benefit from starting treatment at the time of diagnosis. The risk of developing *Pneumocystis jirovecii* (previously known as *Pneumocystis carinii*) pneumonia increases once the CD4 count falls below 200 cells/ml and HAART should certainly be started before this time. Prophylaxis against PCP is recommended for patients with CD4 counts below 200 cells/ml (e.g. cotrimoxazole 960 mg orally three times a week).
5. HAART involves the use of a combination of drugs that act at various stages of the HIV replicative cycle. Three drugs are usually used initially, occasionally four, and a number of formulations combine drugs in a single tablet or capsule, to aid compliance. There are currently five groups of commonly used drugs:

(a) nucleoside analogue reverse transcriptase inhibitors (e.g. abacavir, emtricitabine, lamivudine, tenofovir, zidovudine)
(b) non-nucleoside analogue reverse transcriptase inhibitors (e.g. efavirenz, etravirine, nevirapine, rilpivirine)
(c) protease inhibitors (e.g. atazanavir, darunavir, lopinavir, fosamprenavir, saquinavir, ritonavir – often used in a low, 'boosting' dosage with other protease inhibitors)
(d) integrase inhibitors (e.g. dolutegravir, elvitegravir, raltegravir)
(e) CCR5 inhibitors (e.g. maraviroc)

As mentioned above, choosing the right combination for the individual patient is not always straightforward. Potential interactions with other medications, HIV drug resistance, patient lifestyle, other current medical problems (e.g. depression, anemia, hyperlipidemia) all need to be considered.

6. The "shared-care" approach with general practitioners involved in clinical management along with the hospital team is a useful model to adopt. A multidisciplinary team may be required for some patients with hospital doctors, GPs, social workers, counselors, dietitians, drug-workers, and district nurses working closely together. Most teams also have a designated "HIV liaison nurse" who plays a key role in coordinating care and oversees the smooth transition between hospital and the community.
7. The management of the complications of HIV infection is summarised in Table 19.2. Earlier diagnosis of infection and treatment when the CD4 count reaches 350 cells/ml has resulted in fewer patients presenting with complications, as these often arise in the context of severe immunosuppression. In addition, the initiation of HARRT usually results in sufficient immune system restoration to help resolve complications.

Management of complications of HIV infection are summarized in Table 19.2.

Table 19.2 Complications of HIV infection

Symptoms	Common cause	Common treatment
Sore mouth ± dysphagia	Candida (Fig. 19.1)	Nystatin suspension; miconazole gel; fluconazole; itraconazole
	Herpes simplex	Aciclovir; famciclovir; valaciclovir
Diarrhea ± weight loss	Cryptosporidium Microsporidiosis	Codeine phosphate; loperamide; nitazoxanide, albendazole, paromomycin
	HIV enteropathy	Codeine phosphate; loperamide
Headache	Cryptococcal meningitis	Amphotericin ± flucytosine; fluconazole
	Toxoplasmosis	Pyrimethamine + sulphadiazine/clindamycin/clarithromycin/ azithromycin
	CNS lymphoma	Prognosis very poor
Cough ± breathlessness	Pneumocystis jirovecii	Co-trimoxazole; pentamidine; atovaquone
	Bacterial pneumonia	Conventional therapy
	Tuberculosis	Conventional therapy

Loss of vision	Cytomegalovirus retinitis	Ganciclovir; foscarnet; cidofovir
Fever/weight loss	Mycobacterium avium complex	Combination therapy – usually 2–3 drugs e.g. rifabutin, clofazimine, clarithromycin, azithromycin, ciprofloxacin, ethambutol, streptomycin, amikacin
	Cytomegalovirus Non-Hodgkin's Lymphoma	Ganciclovir, foscarnet; Chemotherapy, e.g. CHOP[a]
Other problems		
Thrombocytopenia		Zidovudine; prednisolone (treatment often not required)
Kaposi's sarcoma (Fig. 19.2)		Radiotherapy; vinblastine + bleomycin; liposomal doxorubicin; liposomal daunorubicin; paclitaxel; etoposide; "skin camouflage"
Ano-genital herpes		Aciclovir; famciclovir; valaciclovir
Genital warts		Cryotherapy; podophyllotoxin; imiquimod
Molluscum contagiosum		Cryotherapy; podophyllotoxin
Seborrheic dermatitis		Antifungal + hydrocortisone cream

[a]*CHOP* cyclophosphamide, hydroxydaunorubicin, vincristine, and prednisolone

FIGURE 19.2 Kaposi's sarcoma

FIGURE 19.1 Oral candidiasis

Chapter 20
Genital Problems in Children

Pediatrics is usually the most appropriate first line of referral for children with genital problems requiring a specialist opinion. Referral on to gynecology, urology, dermatology or GU medicine for a combined assessment can then take place if considered necessary. Consider seeking advice at an early stage, particularly if there is the slightest concern about sexual abuse. A telephone call and discussion prior to referral is often appreciated in the less straightforward cases.

Girls

Vaginal Discharge

Prepubertal girls do occasionally produce a small amount of clear, non-malodorous vaginal discharge. In addition, a slightly thicker, off-white discharge is often seen during the first week after birth and during the months preceding the menarche. A discharge which is particularly heavy or malodorous suggests an infective or pathological cause. This may be associated with vulval irritation and possibly evidence of vulval and vaginal erythema.

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The more common causes of pathological discharge include the following:

1. Infection

   (a) *Candidiasis.* Candida is an uncommon pathogen in prepubertal girls; however, symptoms, when they occur, are identical to the adult with vulval irritation and evidence of a vulvitis. *Candida* may develop on a pre-existing skin disorder such as eczema or seborrhoeic dermatitis. It is worth inquiring whether the mother has symptoms suggestive of "thrush" as transfer of *Candida* from mother to baby may sometimes occur.
   (b) *Bacterial vaginosis.* Although usually associated with sexual activity, bacterial vaginosis has been documented in sexually inexperienced adolescents. The condition is occasionally seen in very young children; however, the prevalence of bacterial vaginosis in this age group has not been reported.
   (c) Group A and Group B streptococci
   (d) Escherichia coli
   (e) *Haemophilus influenzae.* Although the above three groups of organisms have been reported to cause vulvovaginitis, asymptomatic carriage may also occur. Positive bacterial culture from a vaginal swab may therefore not always signify pathogenicity. A true pathogenic role may be assumed if symptoms resolve with antibiotic treatment.
   (f) *Shigella flexneri.* Has been reported as a cause of vulvovaginitis but is considered very uncommon.
   (g) *Chlamydia trachomatis.* The prepubertal vagina is susceptible to chlamydial infection. This is in contrast to the adult where the cervix and urethra are the prime sites of infection. Prepubertal chlamydial infection should raise a strong suspicion of sexual abuse, although in the very young infection may have occurred by vertical transmission from the mother at birth. This may persist for up to 2 years after birth and possibly longer. Asymptomatic vaginal and rectal

infection has been reported in as many as 15 % of infants born to infected mothers. Conjunctivitis and pneumonitis are more common complications and have been reported in 50–70 % of exposed infants.

(h) *Gonorrhea.* This is a sexually transmitted infection and should be considered diagnostic of sexual abuse in the majority of cases.

2. Foreign bodies

Young girls occasionally insert small objects or pieces of toilet paper into the vagina as part of normal exploratory behavior. With time these objects may give rise to a malodorous discharge. Insertion of objects that mimic a penis suggests possible sexual abuse rather than self-stimulation.

Genital Irritation

Vaginal Discharge

This may cause vulval erythema and irritation secondary to persistent dampness. Alternatively, vulval symptoms may be directly attributable to the initiating infection, for example *Candida.*

Threadworms

Generally considered a cause of anal irritation, threadworms may track to the vulval area and give rise to predominantly genital symptoms. The major symptom is nocturnal perineal pruritis and examination may reveal vulval and perianal erythema.

Chemical Irritants

"Bubble-bath," scented soaps, and shampoos may cause an irritant dermatitis or a true contact dermatitis. As for adults, aqueous cream is a useful soap substitute.

Poor Hygiene

Whereas excessive washing with scented soaps may cause problems, inadequate genital bathing and poor hygiene leading to prolonged exposure to urine or feces may also predispose to irritation. Non-cotton and tight fitting underwear may aggravate symptoms.

Masturbation

Children masturbate or play with their genitalia from the time their hands can reach that far. This is considered a normal part of sexual development, although it frequently generates a degree of anxiety in the parents. Public and "excessive" masturbation may be seen in the learning disabled as part of their disability. The possibility of sexual abuse should be considered in other children, particularly if masturbation is performed in public.

Lichen Sclerosus

This condition may affect young children and, to the unwary, may be misdiagnosed as evidence of sexual abuse. The clinical features are the same as seen in the adult (See Chap. 8, Fig. 8.6)

Boys

Balanoposthitis is not an uncommon problem in uncircumcised young boys. Symptoms are usually mild and settle with simple measures, such as bathing. Recurrent inflammation is unusual and often associated with a non-retractile foreskin or poor hygiene. At birth the prepuce adheres to the glans penis in most infants. By 6 months 15 % of infants have a retractile foreskin and by the age of 5 years just over 90 % of boys can

fully retract the foreskin. This increases to 99 % by the age of 17 years. An inability to retract the foreskin may be due to phimosis which is a pathological scarring of the foreskin, often secondary to lichen sclerosus (also known as 'balanitis xerotica obliterans'). Phimosis should be distinguished from a normal but non-retractile foreskin. Preputial adhesions represent a stage in the normal process of separation of the two epithelial surfaces of the glans and the prepuce and will usually spontaneously resolve without treatment.

Chapter 21
Painful Sex and Psychosexual Problems

The World Health Organisation estimated that between 8 and 22 % of women experience painful sex (dyspareunia) at some time. A study of young women in Sweden found that two thirds experienced pain when they had sex for the first time. A different study, but again from Sweden, of over 3000 women aged between 20 and 60 years found that about 9 % had experienced painful sex at some time during their lives; for 20–29 year olds, the figure was 13 % and for 50–60 year olds, 6.5 %. Many women delay in seeking help from their doctor, either due to embarrassment or because they hope that the pain will improve with time. In one of the studies mentioned above, only just over one quarter of the women who had experienced prolonged and severe pain with sex had consulted a doctor.

Dyspareunia may be deep, with pain being felt in the pelvis, or superficial with the pain being localised to the vulva or the vaginal entrance (introitus). Women with superficial dyspareunia often experience pain with attempted penile penetration or when using tampons. The commonest causes are localised provoked vestibulodynia, posterior fourchette tears and vaginismus. Vestibulodynia is often misdiagnosed and is covered in more detail in Chap. 8.

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Vaginismus

Vaginismus is a condition that prevents or causes difficulty for a woman to allow an object, of whatever sort, to enter her vagina despite her wish to do so. This is usually a tampon, penis, finger or speculum. The term 'vaginismus' may be replaced by the longer but more descriptive term 'genito-pelvic pain/penetration disorder'. The difficulty with allowing vaginal penetration is associated with tensing or tightening of the pelvic floor muscles ('levator ani' and 'pubococcygeus') and is usually accompanied by a fear or anxiety regarding penetration.

Some practitioners use the term 'vaginismus' and 'dyspareunia' interchangeably, meaning the same thing, which is incorrect. Vaginismus is certainly a common cause of dyspareunia, but any condition that causes pain with sex may also cause a secondary vaginismus. Vaginismus can be difficult to diagnose, particularly when very mild. An examination is required to make the diagnosis, although examination of pelvic floor muscle tone is imprecise and depends to some extent on the experience of the examining practitioner. Vaginal muscle tone is assessed by gently passing a finger into the vagina. Contracted muscle is felt as a hard 'cord' just within the vagina, sometimes more obvious on one side than the other. Even before examining with a finger, the vaginal opening may appear small because the muscles are contracted.

Vaginismus may be encountered by the practitioner when performing a bimanual examination to assess for pelvic pathology or on attempted speculum insertion. Inability to pass a speculum is much less common than a difficulty in opening the speculum to visualize the cervix. There is often a previous history of pain with gynaecological examinations or smear taking and some women relate the onset of symptoms to a particularly traumatising gynaecological examination by an unsympathetic or not particularly well trained practitioner. The fact that the muscle contraction is involuntary is important; asking a woman with vaginismus to relax isn't very

helpful unless she knows how to specifically relax her pelvic floor muscles. Asking about past difficulties with sexual intercourse may unearth a long-standing problem and provide an opportunity to offer help.

A little more difficult to diagnose and treat are women who find genital touching unpleasant but not necessarily painful. They experience a fear of being touched, a response that has been likened to a phobic reaction Although this presents very much like provoked vestibulodynia with secondary vaginismus the problem here is quite different (see Chap. 8) Examination of women who fear being touched is difficult as no contact is possible with the vulval skin, in particular at the introitus. Once confidence has been gained, of the practitioner and of the importance of an adequate assessment, one usually finds a marked degree of vaginismus. This is vaginismus secondary to a fear or phobia of being touched and not necessarily to a fear of expected pain, as would be the case with provoked vestibulodynia, posterior fourchette tears and other painful vulval conditions.

Some women experience vaginismus as part of a more extensive sexual disorder associated with loss of sexual interest and sometimes aversion to sexual contact. This requires more specialised assessment and management.

Treatment

The treatment of vaginismus focuses specifically on how to reduce contraction or tension of the pelvic floor muscles. The aim is usually to help the woman achieve pain free sex, although some may just want to experience less discomfort with gynaecological examinations and are less bothered by the sexual side of things. Since vaginismus is often intimately linked with other conditions, such as vestibulodynia, treatment will obviously need to cover all causes of the problem.

The predominant pelvic floor muscles are called the 'levator ani' and 'pubococcygeus' and in some women all of the pelvic floor muscles may be in a continual state of increased

tone, rather like a persistent muscle spasm. Teaching how to consciously 'let go' of the pelvic floor muscles is key to treating vaginismus. Re-training involves a graded exposure to vulval touch and vaginal containment over weeks or months. For example, firstly the woman should gently touch the vulval skin and vaginal opening and when comfortable with this, proceed to gently inserting a finger into the vagina, and then with time, two fingers. If preferred, vaginal 'trainers' or 'dilators' of varying sizes may be used in place of fingers. Vibrators are less clinical and may be more appealing but they are often worryingly large for women with vaginismus. Clitoral vibrators, used in the vagina, are therefore more appropriate in the early stages. Reducing muscle tightening is achieved by learning how to identify, selectively control and eventually retrain the pelvic floor muscles. Some practitioners teach a 'sniff, drop, flop' approach rather than just advising muscle 'tensing then relaxing'. The move from finger or dilator vaginal insertion to erect penis insertion is a major step and should not be rushed. Advise partner finger insertion before penis insertion and suggest vaginal containment with the female superior or lateral position (provides the woman with more control) before starting gentle pelvic movement. Good communication between partners is essential throughout and explain that it should be a "slowly-slowly" approach, gradually moving toward full penile penetration over a period of weeks with some setbacks to be expected.

Finally, botulinum toxin causes muscle relaxation and injection into the pelvic floor muscles has been reported to help some women with vaginismus.

Psychosexual Problems

The limited consultation time available in the primary care setting makes it difficult to assess and advise on psychosexual problems, at least at the initial consultation. Psychosexual problems are common, may be transient, only arising within certain relationships or at certain times in life and may not be

amenable to a "quick fix." Adequate time is needed to ascertain the exact problem, explore underlying tensions or issues, and develop a treatment strategy, which many primary care practitioners will consider beyond their area of expertise. Nevertheless, a great deal may be achieved during a slightly extended consultation repeated over a few sessions. Managing psychosexual problems provides the practitioner with confidence in taking a sexual history and dealing with other genital medical problems. As with other conditions seen in primary care, specialist advice can be sought for difficult problems not responding to initial therapy.

Specialist texts are to be recommended for those dealing with psychosexual problems on a regular basis and training programs are available for those seeking more in-depth training. What follows is a very brief introduction to the kinds of approach that can be tried for the common psychosexual problems in the "time restricted" primary care consultation.

Impaired Sexual Desire

Try to ascertain whether this is a new problem or an occasional or persistent feeling. Is the current relationship new or long-standing and is there any discord? Is there sexual interest toward other men and does the patient have sexual thoughts or fantasies? This gives some feel to whether the problem is partner related or a more complete lack of sexual desire.

Sexual desire may be impaired by a number of factors. These include unhappiness or discord in the relationship (a common precipitant and maintaining factor for many sexual problems), partner or self-infidelity, partner's sexual dysfunction (e.g. premature ejaculation), depression, post childbirth (may be multifactorial), ill health, and ageing. Unearthing and discussing these issue may have a good therapeutic effect and further counseling can be arranged as necessary.

Problems with Orgasm

This may be a total inability to achieve orgasm or a situational problem with orgasm occurring under certain circumstances, such as masturbation. Sometimes expectations are high; an inability to achieve multiple orgasms should not be considered abnormal. You may have to describe an orgasm as occasionally there can be uncertainty on the patient's part as to whether orgasm has ever been reached. A reasonable clinical description would be increasing arousal, a feeling of tension reaching a climax and then being released, accompanied by a feeling of relaxation. This may or may not be accompanied by a feeling of muscle contraction.

Treatment

Check through the list of possible precipitating factors mentioned in the section "Impaired sexual desire" and address these as necessary. Make sure that foreplay is appropriate in nature and duration; this may require an overview on anatomy with reference to the position of the clitoris.

A "masturbation training programme" can achieve good results. Advise genital self-examination with reassurance that it is perfectly acceptable to touch the genitals. Some women are hesitant to do this and may consider their genitals unattractive. Reassurance and encouragement may be required. Once she is comfortable with touching the labia and the opening to the vagina she should proceed to gently touch the clitoris and the vaginal opening, perhaps contracting the vaginal muscles as she does this. The next step is to advise gentle clitoral stimulation with a finger whilst at the same time imaging a sexual fantasy. A vibrator may be used if an orgasm is not achieved after a few weeks of finger stimulation. This should be considered a temporary aid which will be required less and less as progress is made. Once self-masturbation induced orgasm has been achieved, suggest that the partner, or herself, performs clitoral stimulation during vaginal containment and then with pelvic thrusting.

Men

Erectile Dysfunction

This is a common problem that may range from total erectile failure to situational or intermittent failure. The latter is unlikely to be due to a physical disorder and possible precipitating factors such as stress, depression, "performance anxiety," alcohol excess and medication side effect should be addressed. Oral medications (phosphodiesterase type-5 inhibitors) taken before anticipated intercourse are highly effective at producing an erection and, as a consequence of this, improving confidence. Patients with total erectile failure or a history of only partial erections should be investigated for physical causes.

Premature Ejaculation

Rapid ejaculation is common in young men particularly when entering new sexual relationships. Ejaculation prior to or on vaginal insertion is obviously premature; however, whether the timing of ejaculation is too rapid once thrusting has begun really depends upon whether intercourse is satisfactory to both partners. Premature ejaculation can occur at times of stress and when the frequency of intercourse has been reduced, such as when a partner has been absent for some while. Detecting frustration in the partner can lead to loss of confidence and may produce even more rapid ejaculation or erectile dysfunction. In turn the partner may develop orgasmic dysfunction and loss of sexual desire.

Treatment

The "stop–start" technique involves the partner stroking the penis to the level of arousal and then stopping before the stage of inevitable ejaculation. This should be repeated a few times before allowing the stroking to achieve ejaculation.

The "squeeze technique" involves the partner squeezing just below the glans penis at the man's indication that he has reached a level of high arousal (as with the "stop–start" technique). This is repeated a few times before allowing ejaculation.

Once the man has achieved a degree of control, the couple should move onto vaginal containment, with the partner lifting herself off at the stage of high arousal. Movement is introduced gradually once some control has been achieved.

Failures from time to time are to be expected and success may require some weeks or months of practice. It is important that the man continues to stimulate his partner sufficiently during or after these exercises.

Selective serotonin reuptake inhibitors (e.g. paroxetine, sertraline) have proved successful in treating some cases of premature ejaculation, although this is currently an unlicensed use of these medications in the UK.

Retarded Ejaculation

Ascertain whether this is partial failure with ejaculation occurring during masturbation or sleep or total failure. Men with retrograde ejaculation reach orgasm but fail to produce an ejaculate.

The use of a lotion as the partner stimulates the penis may enhance sensation and increase arousal. If this fails to achieve ejaculation, in future sessions the man should masturbate with the partner stroking the penis progressively earlier during the session until she can bring him to ejaculation. When ejaculation has been achieved, further sessions should focus on masturbation close to the vaginal entrance with penile insertion at the point of high arousal in conjunction with vigorous thrusting.

Just a final note on "sensate focus" treatment. This is considered an important and useful part of the management of psychosexual problems by many practitioners and is probably best left to those with expertise in this area. However, success may certainly be achieved without this approach.

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Useful Websites

Australian Sexual Health Alliance (ASHA). www.sti.guidelines.org.au/.
British Association for Sexual Health and HIV (BASHH). www.bashh.org.
British Association of Dermatologists (BAD). www.bad.org.uk/healthcare-professionals/clinical-standards/clinical-guidelines.
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